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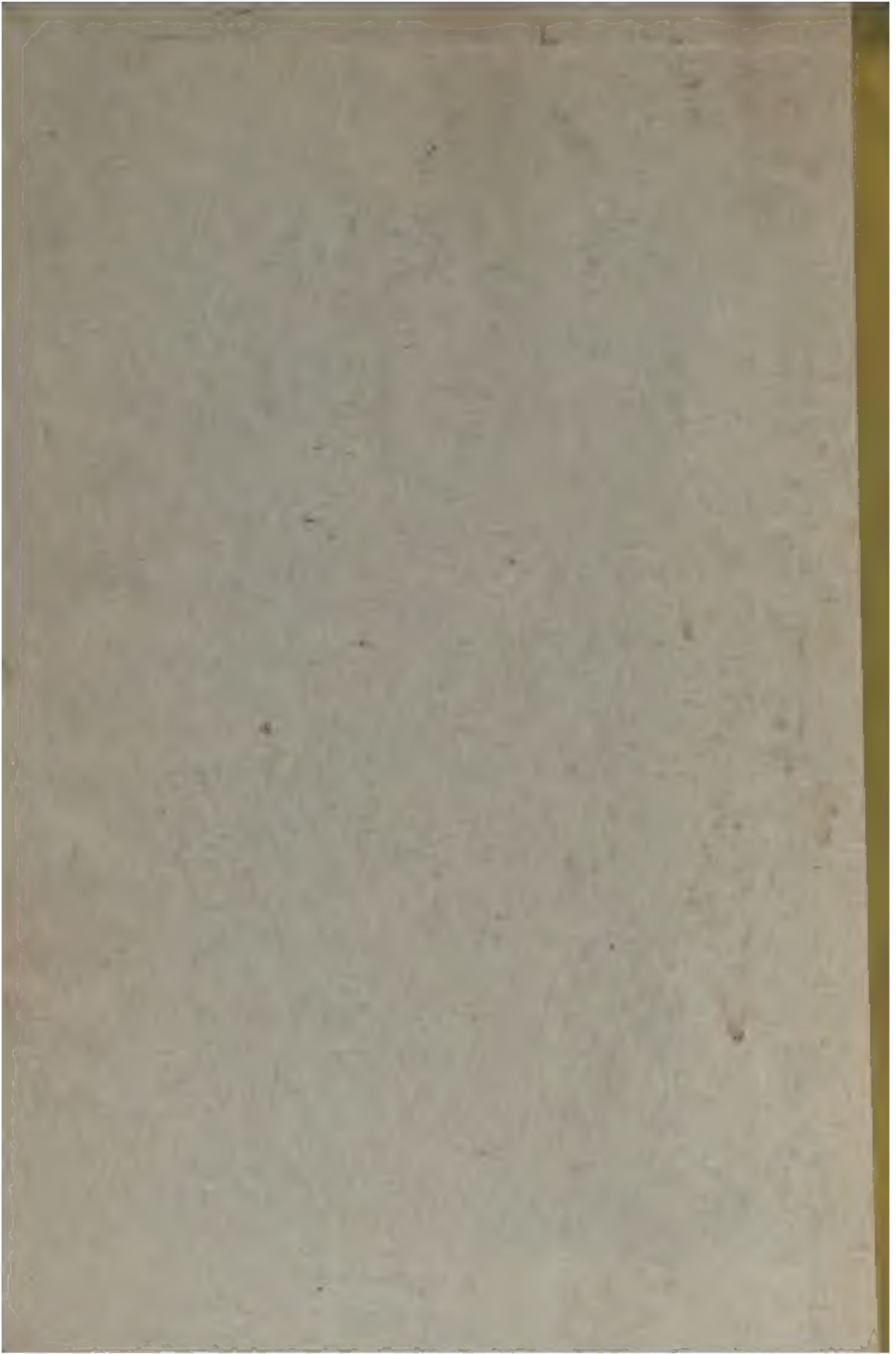
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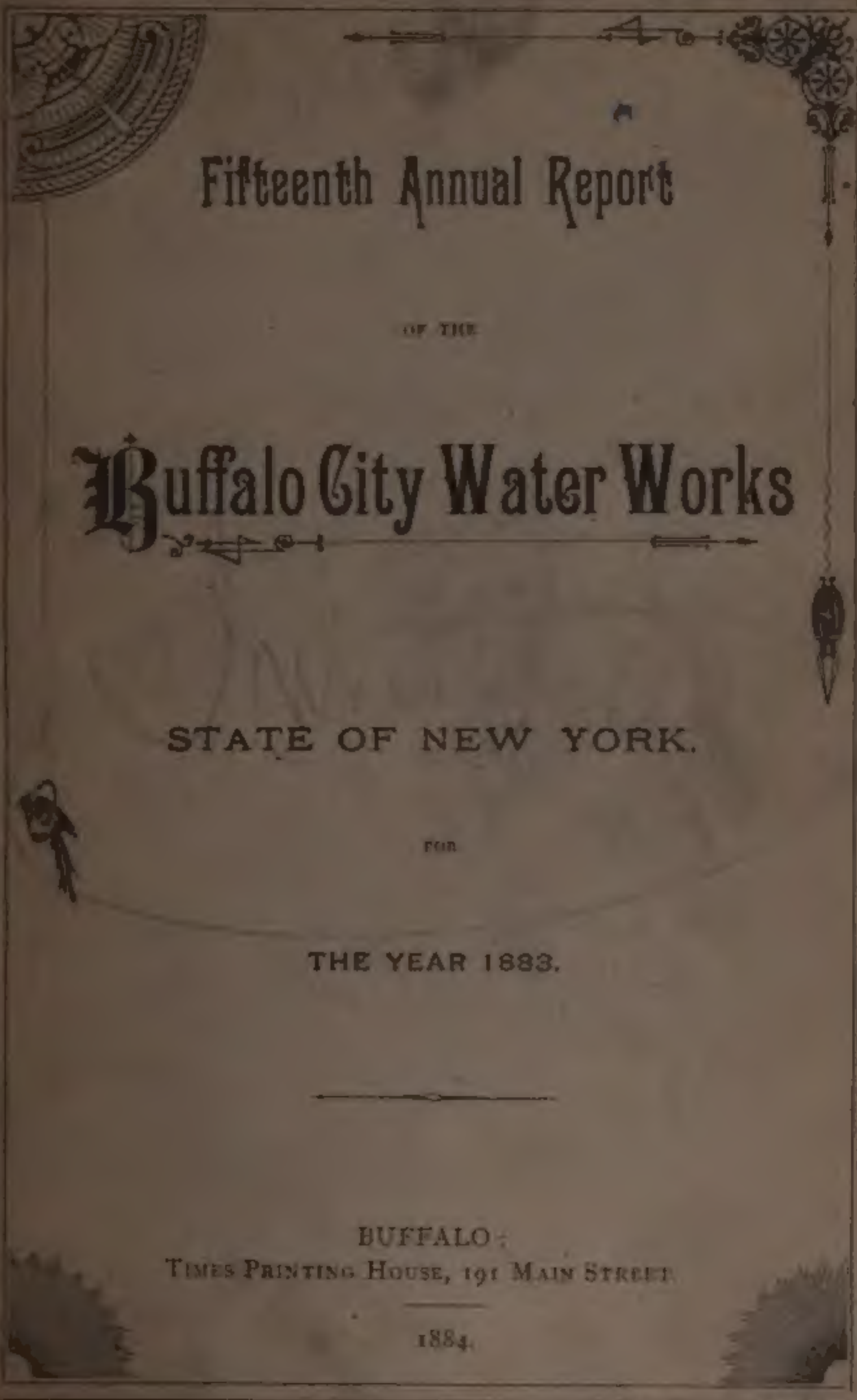
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(Buffalo)



Fifteenth Annual Report

OF THE

Buffalo City Water Works

STATE OF NEW YORK.

FOR

THE YEAR 1883.

BUFFALO:

TIMES PRINTING HOUSE, 191 MAIN STREET.

1884.



FIFTEENTH ANNUAL REPORT

OF THE

BUFFALO CITY WATER WORKS

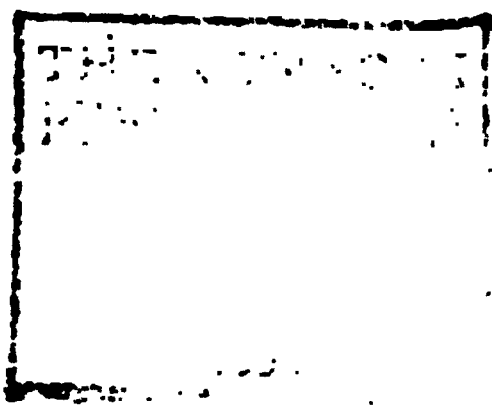
BUFFALO, NEW YORK,

FOR

THE YEAR 1883.

BUFFALO:
TIMES PRINTING HOUSE, 191 Main Street.
1883.

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OFFICERS—1883.

Board of Water Commissioners,

JAMES N. SCATCHERD, Chairman.
LOUIS P. REICHERT, Secretary.
JAMES RYAN.

Superintendent,

LOUIS H. KNAPP.

Cashier,

G. C. GRIMARD.

Registrar,

JOHN T. REES.

Clerks,

JOHN SCANLON,
CHAS. H. BIEBER,
C. A. PERRY.

Commissioners' Report.

To the Honorable the Common Council of the City of Buffalo:

GENTLEMEN: In compliance with Title fifteen, Section ten of the City Charter, we have the honor herewith to submit to you the Fifteenth Annual Report of the Buffalo City Water Works.

In presenting this report we have the satisfaction of stating that for the first time in the history of the Water Works they may be fairly considered self-sustaining, and this notwithstanding within a short time a reduction in rates has been made to domestic consumers of $33\frac{1}{3}$ per cent. and the meter rates to manufacturers and railroads has been cut from an average of nine cents down to three cents per 1,000 gallons.

The works in all departments have been kept in thorough repair, and are now in excellent working condition. Removing the obstructions from the tunnel, repairs to coal and pumping houses, engine and boilers, fencing the grounds at the Holly House, and tile draining 800 hydrants, to prevent them from freezing, has largely increased expenditures.

The cost of this extra work has all been included in the extension and current expense accounts, leaving no floating debt standing against the department for supplies or labor.

A special extension of 8,500 feet of sixteen-inch pipe was ordered in Main street by your honorable body, and an appropriation of \$50,000 for that and general extension purposes was included in the estimates. This extension cost \$41,449.84.

The total requirements of the Water Department for 1883, apart from making provisions for reducing the water debt, was:

For interest on water bonds.....		\$186,986.74
Supplies and labor for current expenses..	\$ 87,193.53	
Supplies and labor for extensions.....	200,029.90	
	<u>\$287,223.43</u>	
Less supplies on hand.....	32,000.00	<u>255,223.43</u>
		<u>\$442,210.17</u>
Total revenues collected from all sources, including frontage tax.....		<u>426,353.57</u>
		<u>\$15,856.60</u>

This exhibit shows that while \$50,000 was placed in the estimates for the benefit of the Water Works, but \$15,856.60 was used.

Whether there might fairly be any difference of opinion or not as to the Water Department being self-sustaining, we feel the showing is good enough to warrant a concession in rates to the domestic consumers of ten per cent.,

one-half in May and one-half in November bills, and we do so recommend.

WATER DEBT.

The water debt has been reduced \$100,000 during the year, leaving the amount of debt on January 1, 1884, \$2,871,882.00. We submit for your consideration, whether instead of paying off this debt as it matures by drafts on the general fund, it might not be better to refund the principal at a lower rate of interest, as it becomes due, and allow the debt to remain as it is until the surplus revenues arising from water rates would extinguish it. At the rate water rents have increased for the past two years, the receipts from the Water Department within five years will be over \$600,000 annually, and, at the same time, our manufacturers, railroads and domestic consumers will be receiving their water supply at lower rates than are charged in any other City.

FRONTAGE TAX.

The exact amount that will be realized from this tax cannot be given until the May bills are rebated.

The frontage tax has been the means of greatly increasing the number of water consumers. There was very little difficulty experienced in rebating the bills—much less than might have been expected.

An arrangement between landlord and tenant, whereby the owner of the premises would settle the water bill,

seems to be all that is required to facilitate rebating the tax.

We would suggest that the time for paying the frontage tax be extended to the tenth day of November. This, to a very considerable extent, would relieve the water consumers from making payments on their water bills before they were due.

NEW PUMPING ENGINE.

A contract has been entered into with the Holly Manufacturing Company for a fifteen million gallon Gaskill engine, six boilers, chimney and foundation for the engine, for the sum of \$83,000. The pump is to be completed and set up by November next. This engine will be placed in the lower pumping house, and assigned to high service duty.

The purchase of this engine will enable the Commissioners to extend the high service district to all parts of the City above the elevation of the reservoir supply.

This will add eighty-seven miles of pipe to the fifty miles of high service now in use, making 137 miles of high service, with abundant pumping capacity to supply it.

COAL AND BOILER HOUSE.

Plans for a new coal and boiler house are now under consideration. The coal house will be arranged so coal can be delivered by rail or canal; at present coal can only be received by canal. This makes it necessary to

lay in at least six months' supply before close of canal navigation each year.

THE ISLAND.

For the purpose of extending the water supply to that portion of the City laying between the river and City ship canal, the pipe was distributed in Ganson street during the season of 1881, and in the spring of 1882 a sixteen-inch main was laid in Chicago street, from Exchange to Ohio street, and the pipe for the remaining distance to the river is now laying on the street. The water pipe cannot be laid across the river to Ganson street until a right of way has been secured between the river and Ganson street.

The Commission appointed to ascertain compensation due to the owners of the property, made the award so excessively high (\$1,000 per foot) the Water Board asked to have all proceedings quashed, and it was done. The fee of the right of way for laying this pipe is not necessary. The right to lay the pipe, with the privilege of access to it for the purpose of repairs, when required, is all that is needed. The Water Board are in favor of laying the pipe as soon as a right of way is secured on reasonable terms.

RESERVOIR SUPPLY.

There is much of the reservoir supply very unsatisfactory on account of there not being head enough to carry the water upon the second floors. It is the intention of the Board to remedy this as soon as the new

engine is ready, by placing, as far as possible, all consumers who are at an elevation of forty feet or more over the lake on the high service.

This arrangement will increase the high service, and correspondingly decrease the reservoir supply.

Increasing the high service district, will call for a 24-inch main from the pumping house through Hampshire street to Ferry street, and a 16-inch main in Ferry street to the 16-inch Main in Main street, thereby strengthening the poor house supply. On the east side it will be necessary to lay a 24-inch main in Virginia, from Main to Jefferson streets. The consumption of water is increasing more rapidly on the high service than on the reservoir supply. Mains for supplying this increase should be laid in advance of the demand, so that when the water is called for, it will be ready for distribution.

DUMPING GROUNDS.

The dredging from the harbor and garbage dumped in the river has not generally been carried below the inlet pier. Much of the water pumped this fall has been contaminated by the filth coming from the dumping ground, during heavy gales.

This serious cause of complaint ought to be dealt with in a manner that would effectually prevent any further dumping in the river, above the water supply.

WATERPHONE.

The use of this device for detecting waste and leaks verifies the estimates generally made, which places the

loss of water from these causes at from forty to fifty per cent. of all the water pumped.

The use of water, however lavish it might be, should not be considered wasting it, but allowing water to run, even in small quantities without using it, is wanton waste. An ordinary water closet, if allowed to run, will waste in 24 hours 7,200 gallons; at this rate the capacity of all the closets for wasting would be 43,984,800 gallons daily; and this the entire pumping power of the works (40,000,000 gallons) could not supply.

Persistency in allowing water to run, or in neglecting to repair leaks, after attention has been called to the waste, is a flagrant evil for which there is at present no adequate remedy. In many cities a fine for each offense, of from three to five dollars, imposed by the Water Board, has had a very salutary effect in correcting waste.

The Water Board, should have authority to deal promptly with this increasing evil, by either fine or shutting off the water, or both, as the abuse might seem to demand.

For particulars in detail, respecting the entire department, we refer you to the report and tables furnished by the Superintendent and Registrar.

All of which is most respectfully submitted

JAMES N. SCATCHERD,
LOUIS P. REICHERT,
JAMES RYAN,

Water Commissioners.



REPORT
OF THE
SUPERINTENDENT.
1883.

January 1, 1884.

To James N. Scatcherd, Louis P. Reichert and James Ryan, Water Commissioners :

GENTLEMEN : Herewith is presented a report showing the operations of the department, and the detail statements of the same, for the year 1883.

INLET PIER.

On three occasions the light which is required to be maintained on the inlet pier during the season of navigation was carried away by portions of timber rafts passing over it. The stone work has been damaged to a considerable extent. In order to protect the light and pier from future injury the top should be covered with boiler plate, and iron guards placed on the slope, so as to prevent the logs from sliding over.

TUNNELS.

As intimated in your last report, a thorough examination was made of the old and new tunnels by sub-marine divers, with the following result :

Considerable quantity of loose stone was found in the old tunnel at Bird Island pier, and removed. The new tunnel, at this place, was reported without any obstructions, but the timber work was found to be badly

worn away under the water by the action of the ice of previous winters. It will be necessary to replace the timber and to repair the stone work of both tunnels at this point.

At the inlet pier a very serious obstruction was found to exist at the bottom of the shaft. The entrance to the tunnel was almost closed by loose stones and gravel. About forty yards of material was removed, and the tunnel put in good shape.

Between the bottom of the pier and the bed rock of the river, on the Canadian side, the original concrete was washed out, leaving an opening five inches high and extending around the shaft nearly six feet. Through this opening gravel, loose stone, cinders, etc., had been carried in by the action of the water. This opening was closed by filling the space with dry pine, and securely fastened on the inside by an iron strap, extending over the entire space. In several places loose portions of the roof of the tunnel were removed by the divers with an iron bar, which were solid when the tunnel was driven, and, at that time, would have required blasting to remove them. This shows the action of the water in loosening the rock, and the necessity of having the tunnel, at this place, occasionally examined, and the loose stone, if any, removed.

The tunnel was closed by ice January 15th and 19th and February 15th. The ice was immediately removed. It is now believed that (on account of the increased

water-way secured) there will be no further trouble from ice closing the inlets.

ENGINES.

The engines are all in good working condition, and no interruption in the supply has occurred during the year.

Engine No. 1 (10,000,000 Worthington), requires new foundations, the steam and water cylinders placed in line, and the working parts re-adjusted.

Engine No. 2 (15,000,000 Worthington), requires new rubber valves for the pumps. Otherwise no alterations are necessary.

Engine No. 3 (15,000,000 Worthington). This engine, capable of supplying either service, has been in use through the year, and no alterations are necessary.

Shepard Engine (6,000,000). This engine has not been used for three years and is practically useless, and should be taken down and sold for old iron.

Holly Engine No. 2 has been thoroughly overhauled and lined up, provided with a new air-pump, and placed in first-class condition, all of the work being done by the employes of the upper engine house, under the supervision of the Chief Engineer. All the engines are now apparently as good as when purchased.

BOILERS.

All the boilers have received very extensive repairs, which was found necessary by the neglect of former years. A large increase of duty has been obtained over

the record of previous years. This is the result of close attention to detail, careful management and increased temperature of the feed-water. Several improvements are contemplated, principally in the boilers, and when carried out still better results are expected.

REPAIRS, ETC.

The fences around the reservoir were repaired and repainted, the brick lining relaid and replaced, a new fence constructed around the lot on which is located the high service engine, the lot graded, etc. The roofs of all the buildings have been repaired, sewer laid to carry off the surface water, and the buildings, including the roofs, etc., painted.

A wooden bulkhead was constructed in the coal shed to prevent the coal from forcing out the south and west walls, which had become too weak to support the weight of coal when filled.

A temporary platform for storing coal for use the present winter was also constructed on the north side of the pumping house.

VALVE HOUSE.

The valve house has been completed, and the connections made with the different pipes, thus making Worthington Engine No. 1 (10,000,000) and No. 3 (15,000,000) available for the high service.

The valves are all under cover, and the room heated to prevent them from freezing.

DISTRIBUTION.

Nearly nineteen miles of pipe were laid, of which seven miles and 2,830 feet was on the high service, and eleven miles and 2,305 feet on the reservoir. The total length of pipe in the City is 150 miles and 529 feet.

PIPE LAYING.

All work has been done by the department by day labor. The cost of excavating, including refilling of the trenches, has been thirty-one cents per cubic yard, and the work has been done in a much cheaper and more satisfactory manner than by the contract system.

No complaints have been received of the obstruction of streets and sidewalks from dirt from the trenches, as formerly when this work was done by contract.

REPAVEMENT.

All repavement has been done at four cents per square foot, including material.

HYDRANTS.

There was placed 114 hydrants on new work, and 194 old hydrants were replaced with new ones, making the total in the City 1,407. Of this number about one-half are drained. The remainder should be completed as early as possible.

For the purpose of preventing the hydrant from freezing, all new hydrants are provided with four-inch drain-

tile, leading from the hydrant to the sewer. In case no sewer exists, the drain-tile is laid for a distance of ten feet, thus assisting the drainage of the hydrant to that extent. There are now only two styles of hydrants used, instead of the dozen different kinds, as formerly.

It is believed the hydrants in the business portion of the City are in as good condition as is possible to make them. The care and maintenance of them should belong to the Fire Department.

STREET SPRINKLING.

In order to avoid the expense, annoyance and danger of the hydrants being out of repair and disabled by constant use for this purpose, it would be better to have independent places for the carts to obtain their supply. The complaints arising from the mud and water around the hydrants in the business portion of the City, caused by the present method of obtaining water, would be entirely avoided.

VALVES.

There were placed 220 new valves in the mains. Several of the large valves have been provided with a stone and brick wall around them, and a strong iron platform placed over the top, provided with a man-hole, thus enabling repairs of all kinds to be made without disturbing the streets. This is the best way of arranging all valves, and is only prevented by the expense. All

valves set are provided with iron cases. No wood of any kind is used in any of the fixtures.

METERS.

There are 105 meters in use. The expense of keeping same in repair during the year was \$1,503.96. Although the care and maintenance of these meters are expensive, they tend greatly to reduce the waste of water, and in equalizing the rates.

CONSUMPTION.

The average daily consumption of water has been 23,475,192 gallons, or 130 gallons per head of population. The average daily consumption of the cities of Glasgow, Liverpool and Manchester is thirty-five gallons, against a former average of fifty gallons per head, the result of rigid inspections; the cities of Boston, New York and Chicago (only partially inspected) is 100 gallons per day; Providence, R. I., probably the best water-supplied city in the country, is thirty-six gallons per day. Of the 11,000 services, 6,000 are metered. The different systems of preventing waste that have been successfully tried are as follows, viz.:

DIRECT MEASUREMENT SYSTEM.

By the use of meters, as in the city of Providence.

THE BELL WATERPHONE.

Detecting waste by sound, including house to house inspection, as used in Cincinnati.

THE DEACON SYSTEM.

An instrument by means of which the quantity of water used in a given district is recorded upon a diagram.

THE CHURCH WASTE DETECTOR.

A peculiarly constructed stop cock applied to each service, attached to which is a pressure gauge, which records the amount of water used.

The use of meters on all large supplies, a rigid house to house inspection and the enforcement of all penalties would probably reduce the average supply of the City to about 60 gallons per day, with a night rate of about 15 gallons per head. This would reduce the consumption 100 per cent., and not decrease the revenue.

SERVICES.

There was placed in the mains 2,650 taps for new services, making the total number to date 16,029.

FIRE HYDRANTS.

Direct connections have been made with the mains with four of the street reservoirs for fire purposes. It is claimed this manner of furnishing water for fires has many advantages over the hydrants.

FIFTEENTH ANNUAL REPORT OF
FREE RESERVOIRS.

A self-closing hydrant was placed at the corner of Elk and Chicago streets ; from its working so far good results have been obtained. If found satisfactory all hydrants of this class (where necessary) should be changed to this pattern. The hydrants that are located on streets in which pipes are laid (with but few exceptions) should be abandoned. They are a source of great annoyance to the department, and there is no reason why they should longer be maintained at public expense.

MAPS.

Work on the detail maps is progressing, and is about half finished, and when completed will furnish, in accessible shape, a record of all the pipes, valves, hydrants, services, etc., through the streets and to each house or premises supplied with water.

REPAIRS.

More than the usual attention has been given to the repair of valves and hydrants. The sum of \$15,000 was expended in draining old hydrants, and the necessary repairs in the central portions of the City.

For further information reference is made to the following detail reports.

LOUIS H. KNAPP,
Superintendent.

OPERATIONS
OF THE
REGISTRAR'S DEPARTMENT,
FOR
1883.

OFFICE NO. 1 CITY AND COUNTY HALL. }
BUFFALO, January 1, 1884. }

James N. Scatcherd, Louis P. Reichert, James Ryan,
Water Commissioners :

GENTLEMEN: Herewith please find detailed statement, showing fully the financial standing of the Water Department, on January 1, 1884, together with other statistics compiled during the year.

Very Respectfully,

JNO. T. REES,

Registrar.

REPORT.

COST OF WATER WORKS FROM PURCHASE TO DATE.

Original Purchase.....	\$ 705,000.00
Dodge Farm.....	79,382.00
Extensions.....	2,934,498.05
Interest on Bonds.....	2,427,975.66
Running Expenses.....	1,121,613.50
On hand January 1, 1883.....	170,636.16
Accounts Due.....	694.44
<hr/>	
Total.....	\$7,439,799.81

RECEIPTS.

Water Rates.....	\$3,060,269.66
Bonds.....	3,071,882.00
Taxes.....	1,307,648.15
<hr/>	
Total.....	\$7,439,799.81

PRESENT STANDING OF WATER WORKS ACCOUNT.

Original Purchase.....	\$705,000.00
Real Estate.....	86,657.00
Engines	233,217.05
Holly Pumping House	12,092.25
Holly Pumping Machinery.....	39,000.00
New Engine House.....	70,472.00
Gas Well.....	9,406.44
Inlet Tunnel and Pier.....	521,823.15
Main Pipes, Branches, Hydrants, etc.....	2,041,212.16
Total.....	<u>\$3,718,880.05</u>

WATER BOND S.

Bonds outstanding January 1, 1884, issued for the purchase, extension and improvement of the Water Works.

Date of Issue.	Amount.	When Due.	Date of Issue.	Amount.	When Due.
.....	.....	.....	.....	\$1,436,000	.....
May 1, 1868	\$ 41,000	May 1, 1884	Sept. 1, 1873	200,000	Sept. 1. 1903
July 1, 1869	100,000	July 1, 1885	April 1, 1874	100,000	April 1, 1905
Oct. 1, 1869	150,000	Oct. 1, 1886	July 1, 1874	100,000	Suly 1, 1906
Mar. 1, 1870	100,000	Mar. 1, 1887	Aug. 1, 1874	100,000	Aug. 1, 1908
June 1, 1870	100,000	June 1, 1888	Oct. 1, 1874	79,382	Oct. 1, 1908
Oct. 1, 1870	145,000	Oct. 1, 1889	Aug. 1, 1875	100,000	Aug. 1, 1909
Jan. 1, 1871	{ 50,000	Jan. 1, 1890	Jan. 1, 1876	50,000	Jan. 1, 1896
Aug. 1, 1871	{ 100,000	Jan. 1, 1891	July 1, 1876	100,000	July 1, 1896
Oct. 1, 1871	50,000	Aug. 1, 1891	Sept. 2, 1878	50,000	Sept. 2, 1898
April 1, 1872	{ 50,000	Oct. 1, 1891	Apr. 25, 1879	100,000	Apr. 25, 1898
July 1, 1872	{ 50,000	April 1, 1884	Apr. 26, 1880	100,000	Apr. 26, 1899
Oct. 1, 1872	100,000	April 1, 1887	July 1, 1880	50,000	July 1, 1904
Dec. 1, 1872	{ 100,000	July 1, 1890	Sept. 1, 1880	100,000	Sept. 1, 1904
	{ 100,000	Oct. 1, 1892	Nov. 26, 1880	64,000	Nov. 26, 1897
		Dec. 1, 1888	Apr. 25, 1881	100,000	Apr. 25, 1900
		Dec. 1, 1892	July 1, 1883	42,500	July 1, 1884
		
Total.....	\$1,436,000		Total.....	\$2,871,882	

INTEREST PAID ON WATER BONDS DURING 1883.

January 22d.....	\$ 8,750.00
February 19th....	13,750.00
March 19th.....	34,103.37
April 23d.....	6,215.00
May 21st.....	10,500.00
June 18th.....	21,500.00
July 16th.....	22,500.00
September 17th.....	34,103.37
October 15th.....	2 715.00
November 19th.....	10,500.00
December 17th.....	22,350.00
Total.....	<u>\$186,986.74</u>



REVENUE.

The total revenue received from all sources was \$426,533.93. This is an increase over the previous year of \$63,771.86. Following itemized statement shows source of revenue, viz.:

Water for City purposes.....		\$100,000.00
From Domestic Consumers and Manufacturers not metered.....	\$176,646.22	
Add Frontage Tax rebated	35,597.54	212,243.76
From Manuf's and Railroads metered...		64,164.84
From Flushing Sewers.....		125.05
From Street Sprinkling.		1,527.31
From Street Paving.....		168.50
From Circuses.		30.00
From Corporation Cocks.....		5,382.00
From Turn-on Fees.....		79.00
From Rent Dodge Farm.....		1,581.00
From Builders.....		1,438.98
Experts' Fees (H. R. W.).....		500.00
Frontage Tax.....	71,811.24	
Less Rebated.....	35,597.54	36,213.70
		<hr/>
Premium on Water Bonds.....		180.36
		<hr/>
		\$423,634.50

SALE OF OLD MATERIAL.

F. S. Pease.....	5 oil barrels.....	\$ 3.75
Jno. Monroe.....	9 loads manure.....	4.50
F. S. Pease.....	6 oil barrels.....	3.50
D. Ullman.....	230 lbs. old brass...	25.30
M. Lichtenstein.....	Scrap iron.....	1.80
G. B. Hayes.....	7,646 lbs. scrap iron.	54.61
G. B. Hayes.....	19,983 lbs. scrap iron	142.73
M. Lichtenstein.....	104 lbs. old brass...	10.40

M. Lichtenstein.....	290 lbs. scrap iron..	\$ 2.20	
M. Lichtenstein.....	80 lbs. junk.....	.80	
M. Lichtenstein.....	400 lbs. scrap iron..	3.00	
M. Lichtenstein.....	200 lbs. scrap iron }	2.40	
M. Lichtenstein.....	90 lbs. old gasket. }		
G. B. Hayes.....	16,704 lbs. scrap iron	119.31	
G. B. Hayes.....	8,230 lbs. scrap iron.	58.78	
M. Lichtenstein.....	429 lbs. old brass. }	42.46	
M. Lichtenstein	514 lbs. scrap iron }		
G. B. Hayes.....	10,860 lbs. scrap iron	77.57	
Foltz, Ashman & Co....	2 hydrant caps.....	.33	
Geo. Hosley.....	Old harness.....	16.00	
Cornell Lead Works....	4,280½ lbs. lead slag	85.61	
Jno. Monroe.....	2 loads manure.....	1.00	\$ 656.05

LABOR AND SUPPLIES.

F. X. Kaltenbach.....	Damage to hydrant.	10.00	
L. P. Beyer & Co.....	Forcing out pipe...	.75	
J. Schuesler.....	Oversetting lead pot.	6.00	
C. Blacking	Repairs of service leak.....	2.40	
L. H. Knapp.....	8¾ hours' work....	1.53	
N.Y.C. & St. L.R.R.Co.	Setting meter and valve at roundh'se	61.84	
L. H. Knapp.....	2 days' carpenter w'rk	4.00	
Irlbacker and Davis....	Connect'n on River st	3.92	
Howard Iron Works....	Branch for motor Mansion House..	70.56	
R. D. Cursons.....	Repairs to hydrant, Pearl&Mohawk st.	5.00	
John Wilkeson.....	Chang'g hydrant cor. Ohio & Washingt'n streets	10.00	
Evans Elevator.....	Chang'g hydrant cor. Norton&Evans st.	15.00	

THE BUFFALO CITY WATER WORKS.

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B. C. Rumsey.....	New valve and labor at ice pond.....	\$22.73	
H. C. French.....	Changing hydrant front of 1109 Del- aware avenue....	15.02	
E. S. Hawley.....	Hydrant on John st. half expense.....	30.26	
Forest Lawn Cemetery			
Association.....	Branch.....	25.40	
L. L. Crocker.....	Old hydrant.....	10.00	
James Adams.....	Moving hydrant....	15.00	
Charity Organization...	Changing hydrant..	10.00	
Jubilee Water Works...	7¼ days' labor with engine.....	14.50	
Park Commissioners....	Branch at Humboldt parkway.....	25.26	
			\$359.17
N. Y. Sleeping Car Co..	Changing hydrants.	35.39	
L. H. Knapp.....	2 hours' work.....	.40	
Firmenich Sugar Refin-			
ing Co.....	Branches to works..	778.90	
C. Klinck.....	1 1½" Union meter.	42.00	
D. L. & W. R. R. Co....	Removing hydrant..	4.50	
Plumb, Burdict & Bar-			
nard.....	Branch to works....	204.00	
John D. Smith.....	Valve for City Hall.	30.54	
D. L. & W. R. R. Co...	Moving hydrant....	71.94	
D. L. & W. R. R. Co...	Moving hydrant....	13.11	
D. L. & W. R. R. Co...	Moving hydrant....	54.59	
N.Y., L.E. & W.R.R.Co..	Work at Howard and Babcock streets..	634.42	
James Ryan.....	Blowing out pipes ..	1.40	
Buffalo Alcoholene W'ks.	Connection.....	13.02	1,884.21
Total.....			\$426,533.93

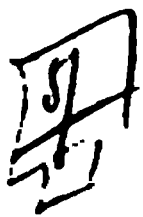
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COMPARATIVE STATEMENT.

Revenue received, coal consumed and water pumped annually for thirteen years:

Year.	Revenue.	Expenses.	Coal Consum'd Tons	Water Pumped, Gallons.	Extensions.	Pipe.		Each year	
						Miles.	Feet	Miles.	Feet
1871	\$124,865.00	\$77,456.95	3,645	2,775,752,490	\$284,297.84	67	4,644	..	.....
1872	138,150.00	69,228.74	4,546	3,226,891,140	355,492.46	77	2,921	9	3,557
1873	168,267.20	77,747.60	4,720	3,329,193,162	308,600.46	81	4,912	4	1,991
1874	176,219.10	66,218.50	2,852	3,040,012,107	307,355.64	86	4,905	4	5,273
1875	184,516.48	64,862.37	3,422	3,828,594,027	159,098.75	91	1,591	4	1,966
1876	191,335.84	61,474.22	3,357	4,020,936,278	106,900.21	92	4,931	1	3,340
1877	189,296.90	57,553.27	3,249	4,267,218,162	17,014.05	93	2,631	..	2,980
1878	200,183.28	55,230.50	3,524	4,589,879,986	48,555.32	94	3,376	1	745
1879	205,415.75	54,497.22	3,979	5,291,337,520	11,457.50	97	626	2	2,530
1880	216,214.37	60,983.67	5,809	5,993,009,343	161,883.89	102	873	5	247
1881	210,031.46	76,629.09	7,192	6,344,182,224	201,487.10	114	4,149	12	3,276
1882	362,762.07	79,105.90	.....	7,076,212,870	160,617.81	131	524	16	1,655
1883	426,353.57	87,193.53	8,811	8,568,445,200	200,029.90	150	529	18	5,135



THE BUFFALO CITY WATER WORKS.

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TRIAL BALANCE, BUFFALO CITY WATER WORKS, DEC. 31, 1883.

1.	Supply Account.....	<i>Dr</i>	\$ 40,605.40
2.	Buffalo City Water Works, Construction.....	\$	584,382.00
3.	Buffalo City Water Works, Extension Fund.....		24,319.57
4.	Bonds Payable.....		2,929,382.00
5.	City Treasurer.....	245,214.07	
6.	Hydrant and Water Fund.....		222,841.73
7.	Buffalo City Water Works, Extension Loan.....	2,345,000.00	
17.	Supply Account.....		287,223.43
37.	Store House.....	6,744.70	
48.	Pipe and Specials.....	520.49	
51.	Fuel.....	62,097.34	
53.	New Engine Foundation.....	11,202.91	
54.	New Boiler House.....	2,106.31	
55.	New Engine Room.....	757.92	
56.	New Engine.....	3,970.41	
57.	Testing New Engine.....	375.07	
58.	Salaries.....	8,653.57	
59.	Engineers, Lower Engine House.	2,983.29	
60.	Fireman, Lower Engine House..	5,272.44	
61.	Labor, Lower Engine House....	2,893.39	
62.	Engineers, Upper Engine House.	2,491.55	
63.	Fireman, Upper Engine House..	1,559.80	
64.	Labor, Upper Engine House....	1,005.00	
65.	Inspectors.....	4,382.35	
66.	Watchmen.....	872.00	
67.	Pipe Inspector.....	348.75	
68.	Teamster.....	378.45	
69.	Tapping.....	1,299.19	
73.	Office Expenses.....	413.80	
75.	Stationery.....	853.61	

78.	Advertising.....	\$ 260.21
79.	Repairs, Store House Building...	190.98
81.	Repairs, Upper Engine House Building.....	757.44
83.	Repairs, Lower Engine House Building.....	2,112.69
85.	Supplies, Upper Engine House..	226.17
89.	Repairs, Holly Engine No. 1....	1.50
91.	Repairs, Holly Engine No. 2....	560.15
92.	Repairs, Boiler No. 1, Upper En- gine House.....	1,049.91
93.	Repairs, Boiler No. 2, Upper En- gine House	747.09
94.	General Repairs, Machinery, Up- per Engine House.....	217.54
96.	Repairs, Coal Hoist, Upper En- gine House.....	123.96
97.	Repairs, Engine No. 1, Lower En- gine House	226.34
99.	Repairs, Engine No. 2, Lower Engine House.....	88.76
100.	Repairs, Engine No. 3, Lower Engine House.....	109.87
101.	Repairs, Worthington Boilers Nos. 1, 2 and 3, Lower Engine House.....	567.28
102.	Repairs, Marine Boilers Nos. 1, 2 and 3, Lower Engine House..	340.01
103.	Repairs, Boilers Nos. 4 and 5, Lower Engine House.....	445.84
104.	General Repairs, Machinery, Lower Engine House.....	328.40
106.	New Tools, Lower Engine House	178.66
108.	Tool Repairs, Lower Engine House	59.44

THE BUFFALO CITY WATER WORKS.

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111.	Supplies, Lower Engine House..	\$1,187.41	
113.	Feed.....	668.93	
115.	Stable Supplies	687.29	
117.	Horse Shoeing.....	120.20	
118.	Harness Repairs.....	176.75	
120.	Repairs, Wagons and Sleighs	282.91	
122.	Wagons and Sleighs Purchased..	135.00	
123.	Veterinary.....	23.75	
135.	Meter Repairs	1,503.96	
139.	Valve Repairs.....	2,874.66	
141.	Joint Leak Repairs.....	965.73	
145.	New Tools, Store House.....	710.71	
147.	Repairs, Tools, Store House.....	484.87	
150.	Repairs, Bridges.....	71.80	
151.	Repairs, Free Hydrants and Horse Troughs.....	129.82	
153.	Corporation Cocks and Services..	1,997.22	
158.	Labor, French Account.....		\$1,094.94
159.	New Coal Bulkhead and Platform	1,806.89	
160.	Maps.....	1,757.96	
166.	Lead.....		792.55
169.	General Street Repairs	2,546.66	
184.	City Treasurer.....	354,542.33	
186.	Water Rates.....		261,314.95
188.	Meter Rates.....		64,164.84
190.	Flushing Sewers.....		125.05
191.	Street Sprinkling.....		1,527.31
192.	Street Paving.....		168.50
193.	Circus Rates.....		30.00
194.	Corporation Cocks		5,382.00
196.	Labor and Supplies.....		359.17
198.	Sale of Old Material.....		656.05
199.	Turn-on Fees.....		79.00
200.	Rent of Dodge Farm.....		1,581.00

202.	Experts' Fees.....		\$ 500.00
203.	Builders.....		1,438.98
208.	Gaskill Engine.....	\$ 170.90	
225.	Hydrant Repairs.....	14,167.19	
329.	Street Reservoir.....	363.99	
330.	Meter Screens.....	0.00	
331.	Horses Purchased.....	180.00	
331.	Reservoir.....	935.39	
332.	Bird Island Pier Valve.....	197.37	
333.	Air Pump.....	330.33	
333.	Scajaquada Creek Bridge.....	1,778.47	
334.	New Horse Troughs.....	85.84	
335.	Repairs, Dodge Farm.....	362.00	
336.	Old Repair Account.....	1,060.02	
337.	Pressure Regulator.....	2,803.70	
338.	Repairs, Feed Pumps, Lower En- gine House.....	103 01	
338.	Service Leaks.....	429.83	
339.	Inlet Pier.....	2,419.63	
340.	Freight and Express Charges....	33.69	
341.	James N. Scatcherd.....	488.00	
341.	Louis P. Reichert.....	624.00	
341.	James Ryan.....	624.00	
342.	Rent of Bell Telephone Co.....	299.99	
342.	Traveling Expenses.....	100.00	
346.	Delaware avenue, betw. Ferry street and Chapin place.....	314.60	
346.	Goodrich street, betw. Michigan and Main streets.....	1,307.34	
346.	Elicott street, betw. Goodrich and High streets.....	335.72	
347.	George street, betw. Mortimer and Jefferson streets.....	360.28	
347.	Locust street, betw. High and North streets.....	696.29	

347.	Fox street, betw. Genesee and Sycamore streets.....	\$1,427.16
348.	Albany street, betw. Niagara street and West avenue.....	481.34
348.	West avenue, betw. Albany and Arkansas streets.....	560.76
348.	Hampshire street.....	342.56
349.	Genesee street, betw. Herman and Best streets.....	4,680.54
349.	Carlton street, betw. Jefferson street and 250 feet easterly. . .	291.32
349.	Johnson street, betw. Genesee and Sycamore streets.....	1,351.28
350.	Fifteenth street, betw. Connecticut and Vermont streets.....	711.81
350.	Vermont street, betw. Thirteenth and Fourteenth streets.....	422.20
350.	Bryant street, betw. Elmwood and Howard avenues.....	1,054.13
351.	Howard avenue, betw. Bryant and Summer streets.....	1,376.91
351.	Utica street, betw. Elmwood and Ashland avenues.....	228.98
351.	Utica street, betw. Linwood ave- nue and Main street.....	504.10
352.	Utica street, betw. Delaware and Linwood avenues.....	180.52
352.	Summer street, betw. Howard and Ashland avenues.....	645.66
354.	Smith street, betw. Elk and Seneca streets.....	6,703.18
354.	Oak street, betw. North and Best streets	639.00
354.	Beech street, betw. Virginia and Carlton streets	650.44

355.	Lemon street, betw. High and North streets.....	\$ 692.48
355.	Lord street, betw. Clinton and Eagle streets.....	489.73
355.	Eagle street, betw. Bond and Smith streets.....	710.23
356.	Fifteenth street, betw. York and Connecticut streets.....	665.96
356.	Hinkley street, betw. Spring and Mortimer streets.....	323.41
356.	Fifteenth street, betw. York and Jersey streets.....	560.85
357.	Utica street, betw. Main and Jefferson streets.....	3,521.46
357.	John street, betw. Seneca and Pearl streets.....	421.14
357.	Vermont street, betw. West avenue and Thirteenth street.....	802.83
358.	Vermont street, betw. Fourteenth and Sixteenth streets.....	851.35
358.	Vermont street, betw. Eighteenth street and Richmond avenue...	512.19
358.	Howard street, betw. Sherman and Shumway streets....	495.74
359.	Monroe street, betw. William and Peckham streets.....	906.22
359.	North street, betw. Main and Michigan streets.....	1,514.92
359.	Massachusetts street, betw. Thirteenth street and Plymouth ave.	401.65
360.	Kane street, betw. Sycamore street and 500 feet northerly.....	551.07
360.	Krettner street, betw. William and Peckham streets.....	940.65

THE BUFFALO CITY WATER WORKS.

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360.	Ellicott street, betw. Best and Dodge streets.....	\$ 587.24
361.	Adam street, betw. Brown and Genesee streets.....	368.46
361.	Metcalfe street, betw. Howard and William streets.....	556.75
361.	Michigan street, betw. Utica and Laurel streets.....	274.28
362.	Tousey street, betw. Sycamore and Champlain streets.....	264.75
362.	Elm street, betw. Best and North streets.....	528.39
362.	Shumway street, betw. William and Peckham streets.....	977.69
363.	Howard street, betw. Monroe and Adam streets.....	297.31
363.	Grey street, betw. Broadway and Sycamore street.....	1,238.68
363.	Howard street, betw. Watson and Emslie streets.....	38.92
364.	Howard street, betw. Smith street and Fillmore parkway.....	853.88
364.	Rhode Island street, betw. Prospect and West avenues.....	804.12
364.	Summer street, betw. Delaware avenue and Main street.....	813.15
365.	Waverly street, betw. Ferry street and R. R. avenue.....	705.78
365.	Ashland avenue, betw. Bryant street and 850 feet southerly..	785.51
365.	Cayuga street, betw. Jefferson street and 700 feet easterly...	648.44
366.	Penfield street, betw. West avenue and Niagara street.....	256.15

366.	Rhode Island street, betw. Thirteenth street and Richmond av.	\$3,602.64
366.	Krettner street, betw. Lovejoy street and 150 feet northerly..	176.61
367.	Peckham street, betw. Smith street and Fillmore avenue	1,738.35
367.	Sherman street, betw. Sycamore and Genesee streets.....	1,309.80
367.	Ralph alley, betw. Burton alley and Virginia street.....	357.65
368.	Burton alley, betw. Ralph alley and Michigan street.....	114.49
368.	Fillmore parkway, betw. Seneca and Peckham streets.....	15,439.42
368.	Carroll street, betw. Van Rensselaer and Hydraulic streets....	109.45
369.	Dodge street, betw. Michigan and Masten streets.....	549.96
369.	Herman street, betw. Genesee street and Broadway.....	1,690.48
369.	West avenue, betw. Arkansas and Breckenridge streets.....	780.37
370.	Ferry street, betw. Ferry street and West avenue.....	194.85
370.	Stanton street, betw. Lovejoy street and 510 feet northerly..	506.99
370.	Front avenue, at Connecticut street.....	84.78
371.	Bird avenue, betw. West avenue and Grant street.....	1,698.04
371.	Carlton street, from end of pipe to Genesee street.....	1,093.75
371.	Elk street, betw. Smith and Babcock streets.....	5,005.32

372.	Michigan street, betw. N. Hampton and Laurel streets.....	\$ 901.58
372.	Fourteenth street, betw. Rhode Island and Massachusetts sts..	623.74
372.	Morgan street, betw. Genesee and Court streets.....	353.45
373.	Farmer street, betw. East and Gurnsey streets.....	356.59
373.	Hamilton street, betw. East street to 50 feet east of Thompson street.....	593.39
373.	Michigan street, betw. Utica and Ferry streets.....	1,400.67
374.	Monroe street, betw. William and Clinton streets.....	1,267.26
374.	Sherman street, betw. William and Howard streets.....	559.36
374.	Bristol street, betw. Bond and Emslie streets.....	305.79
375.	Stanton street, betw. William and Peckham streets.....	978.75
375.	Sixteenth street, betw. Connecticut and Vermont streets.....	624.99
375.	Ferry street, betw. West avenue to 450 feet easterly.....	506.90
376.	Selkirk street, betw. Elk and Perry streets.....	738.15
376.	School street, betw. Fargo avenue to 300 feet easterly.....	423.93
376.	Chenango street, betw. Rhode Island and Ferry streets.....	1,193.03
377.	Massachusetts street, betw. Prospect and Fargo avenues.....	406.71
377.	Burton alley, betw. Oak street and Boston alley.....	307.45

377.	Hamilton street, betw. Spring and Jefferson streets.....	\$ 557.85	
378.	Bond street, betw. Howard and Oneida streets.....	260.60	
378.	Peach street, betw North and Best streets	547.20	
378	Fargo avenue, betw. Massachu- setts and Hampshire streets...	19.67	
379.	Main street, betw. Delaware avenue and R. R. crossing	39,499.84	
379.	William street, betw. Babcock street and Williamsville road..	5,112.05	
379.	Williamsville road, betw. William street and Broadway.....	9,620.76	
380.	Williamsville road, betw. Broadway and 1,300 feet northerly.....	2,480.09	
393.	Folz, Ashman & Co.....	301.39	
393.	A. Schaeffer.....	63.00	
394.	Jno. T. Noye & Sons.....	23.00	
394.	American Grape Sugar Works...	70.16	
394.	N. Y. W. S. & B. R. R. Co.....	63.96	
395.	N. Y. W. S. & B. R. R. Co.....		\$ 15,331.27
398.	M. Scanlon.....	15.50	
398.	Laub & Zeller.....	10.19	
399.	Adam Hastman.....	147.44	
		<hr/>	
		\$3,858,917.74	\$3,858,917.74

BALANCE SHEET, BUFFALO CITY WATER WORKS, JANUARY 1, 1884.

2.	Buffalo City Water Works Con- struction.....	\$584,382.00	
3.	Buffalo City Water Works Exten- sion Fund.....	237,737.25	
4.	Bonds Payable.....		\$2,871,882.00

THE BUFFALO CITY WATER WORKS.

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5. City Treasurer.....	\$170,635.96	
6. Hydrant and Water Fund.....		\$466,567.85
7. Buffalo City Water Works Extension Loan.....	2,345,000.00	
17. Supply Account.....		29,418.59
37. Store House.....	6,744.70	
46. Pipe and Specials.....	520.49	
51. Fuel.....	22,153.40	
393. Folz, Ashman & Co.....	301.39	
393. Alois Schaeffer.....	63.00	
394. John T. Noye & Son.....	23.00	
394. American Grape Sugar Works....	70.16	
394. New York, West Shore & Buffalo R. R. Co.....	63.96	
398. M. Scanlon.....	15.50	
398. Laub & Zeller.....	10.19	
399. Adam Hastman.....	147.44	
	<hr/>	<hr/>
	\$3,367,868.44	\$3,367,868.44

EXTENSION FUND.

1883.

Jan'y 29,	G. C. Grimard, Cash'r..	Pay roll, January.....	\$ 29.00
Feb. 19,	Hardwicke & Ware....	Labor and material....	4.22
"	Buffalo Gas Light Co..	Replacing gas mains...	7.72
"	Weed & Co.....	Material.....	.13
"	Harris & Loskam.....	Board of Experts.....	53.00
"	Taylor and Crate.....	Lumber.....	36.72
"	E. G. Felthousen	Labor and Material....	19.80
"	Wm. H. Jaeger.....	Refreshments	20.00
"	Daniel Sullivan.....	Cartage	1.00
"	Bott and Hughes.	Paint'g and kalsomining	25.00
"	Young, Lockwood & Co.	Stationery	6.90

1883.

Feb. 19,	Drullard & Hayes.....	No. 4, special castings..	\$107.79
"	Drullard & Hayes.....	No. 6, special castings..	94.25
"	Drullard & Hayes.....	No. 8, special castings..	68 63
Mar. 5,	F. S. Pease.....	Merchandise.....	109.40
"	F. S. Pease.....	Empty casks.....	6.80
"	Robert Chilcott.....	Ceiling pump house....	215 00
"	Hardwicke & Ware....	Labor and material....	5.80
"	Buffalo Scale Co.....	Loan of scales.....	20.00
"	S. Chamberlain.....	Labor and material....	5.30
"	Farrar & Trefts.....	Labor and material....	3.55
"	Felthousen & Russell..	Labor and material....	8.05
Mar. 12,	E. & B. Holmes.....	Lumber.....	13.00
"	Nelson Holland.....	Lumber.....	10.64
"	Hurd & Hauenstein...	Lumber.....	10.15
"	C. J. Hamilton.....	Lumber.....	4.82
April 2,	Felthousen & Russell..	Labor and material....	6.10
"	G. C. Grimard, Cash'r.	Pay roll, March.....	337.23
April 9,	Lee, Smith & Moore...	Coal.....	4.50
"	Weed & Co.....	Merchandise.....	6 70
"	Harris & Losekam....	Board.....	20.50
April 30,	G. C. Grimard, Cash'r.	Weekly pay roll.....	165.12
"	G. C. Grimard, Cash'r.	Pay roll, April.....	3,308 27
May 7,	G. C. Grimard, Cash'r.	Weekly pay roll.....	314 49
May 14,	Geo. B. Hayes.....	Water pipe.....	192 77
"	Geo. B. Hayes.....	Special castings.....	759 87
"	Geo. B. Hayes.....	Special castings.....	276 34
"	C. J. Hamilton.....	Lumber, etc.....	1.20
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	245 62
May 21,	A. M. Edwards.....	Loan of chronometer..	5 00
"	Ludlow Valve M'f'g Co.	Hub valves.....	966.25
"	Hardwicke & Ware....	Labor and material....	.50
"	John Lyth.....	Drain tile.....	30 00
"	Wm. McDonnell.....	Teaming, etc.....	13.50

THE BUFFALO CITY WATER WORKS.

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1883.

May 21,	Weed & Co.....	Sundries.....	\$6.75
"	Pratt & Co.....	Sundries.....	78.45
"	James Boland.....	Repaving.....	240.16
"	James Boland.....	Repaving.....	223.28
"	James Boland.....	Repaving.....	151.40
"	James Boland.....	Repaving.....	100 44
"	Geo. B. Hayes.....	Special castings.....	303.01
"	Geo. B. Hayes.....	Special castings.....	491.16
"	Geo. B. Hayes.....	Cast iron pipe.....	756.18
"	Geo. B. Hayes.....	Cast iron pipe.....	1,166.45
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	235.01
May 28,	G. C. Grimard, Cash'r.	Weekly pay roll.....	368.85
"	G. C. Grimard, Cash'r.	Pay roll, May.....	3,456.05
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	532 04
June 10,	Wm. McDonald.....	Teaming.....	40 00
"	Buffalo Gas Light Co..	Coke.....	20 25
"	D. W. McConnell.....	Draining water trench..	75.00
"	G. B. Hayes.....	Hydrant repairs.....	62.75
"	G. B. Hayes.....	Cast iron pipe.....	2,293 56
"	G. B. Hayes.....	Special castings.....	172.96
"	G. B. Hayes.....	Cast iron pipe.....	1,006.16
"	G. B. Hayes.....	Hydrants.....	333 00
"	G. B. Hayes.....	Special castings.....	171.33
"	G. B. Hayes.....	Cast iron pipe.....	2,830.02
"	G. B. Hayes.....	Hydrants.....	222.00
"	G. B. Hayes.....	Special castings.....	328.29
"	G. B. Hayes.....	Special castings.....	282.23
"	G. B. Hayes.....	Hydrants.....	259 00
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	760 03
June 17,	Richard Bullymore....	Oil.....	96.00
"	C. Sour	Pine plugs.....	28 00
"	J. Bourgnon.....	Charcoal.....	2.10
"	M. Kalbfleisch's Sons..	Pig lead.....	1,327.50

1883.

June 17,	G. B. Hayes.....	Cast iron pipe.....	\$4,792.63
"	G. B. Hayes.....	Cast iron pipe.....	7,544.47
"	G. B. Hayes.....	Special castings.....	191.33
"	G. B. Hayes.....	Hydrants.....	888.00
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	954.89
June 25,	Pratt & Co.....	Sundries.....	53.45
"	James Boland.....	Repaving.....	56.78
"	James Boland.....	Repaving.....	37.56
"	James Boland.....	Repaving.....	114.36
"	James Boland.....	Repaving.....	44.48
"	James Boland.....	Repaving.....	31.72
"	James Boland.....	Repaving.....	49.00
"	James Boland.....	Repaving.....	36.60
"	G. B. Hayes.....	Special castings.....	539.57
"	G. B. Hayes.....	Hydrants.....	555.00
"	G. B. Hayes.....	Cast iron pipe.....	3,738.53
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	756.36
"	G. C. Grimard, Cash'r.	Pay roll, June.....	4,270.93
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	962.77
July 2,	Taylor & Crate.....	Lumber.....	5.09
"	Ludlow Valve M'f'g Co.	Valves.....	1,537.50
July 9,	B. Cunningham.....	Excavating.....	1,200.00
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	882.40
"	W. R. & W. Havens...	Excavating.....	1,356.00
July 16,	Bingham & Morgan...	Sundries.....	215.10
"	J. Lyth & Son.....	Tile, etc.....	30.00
"	W. H. H. Newman & Co.	Pig lead.....	924.80
"	James Boland.....	Repaving.....	489.62
"	N. Y. C. & H. R. Ry Co.	Freight charges.....	18.44
"	Geo. B. Hayes.....	Special castings.....	405.57
"	Geo. B. Hayes.....	Hydrants.....	518.00
"	Geo. B. Hayes.....	Cast iron pipe.....	5,024.45
"	Geo. B. Hayes.....	Cast iron pipe.....	1,165.04

1883. .

July 16,	Geo. B. Hayes.....	Cast iron pipe.....	\$1,708.50
"	Geo. B. Hayes.....	Cast iron pipe.....	1,089.46
"	Geo. B. Hayes.....	Special castings.....	202.46
"	Geo. B. Hayes.....	Cast iron pipe.....	1,496.68
"	Geo. B. Hayes.....	Cast iron pipe.....	948.03
"	Geo. B. Hayes.....	Special castings	117.65
"	Eddy Valve M'f'g Co..	Valves	3,688.85
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	1,155.06
July 23,	G. C. Grimard, Cash'r.	Weekly pay roll.....	1,002.62
"	W. R. & W. Havens...	Excavating trenches...	577.25
"	B. Cunningham.....	Excavating trenches...	250.00
July 30,	Felthousen & Russell..	Merchandise	7.50
"	Farrar & Trefts.....	Labor and material....	9.42
"	Taylor & Crate.....	Lumber.....	6.85
"	Geo. B. Hayes.....	Cast iron pipe.....	2,569.80
"	Geo. B. Hayes.....	Cast iron pipe.....	935.39
"	Geo. B. Hayes.....	Labor and material....	263.35
"	Geo. B. Hayes.....	Cast iron pipe.....	2,860.75
"	Geo. B. Hayes.....	Cast iron pipe.....	864.94
"	Geo. B. Hayes.....	Special castings.....	269.02
"	G. C. Grimard, Cash'r.	Pay roll, June..	3,625.79
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	821.62
"	G. C. Grimard, Cash'r.	For weekly pay roll during adjournment of Council, as per resolution.....	4,000.00
Aug. 27,	Ludlow Valve M'f'g Co.	Fire Hydrants.....	1,537.50
"	Buffalo Gas Light Co..	Coke.....	18.00
"	Williamsville Lime Co.	1 barrel lime.....	7.50
"	Charles Suor.....	Pine plugs.....	19.00
"	Vosburgh & Baker....	Sundries.....	40.30
"	Joseph Bourgnon.....	Charcoal.....	1.50
"	The Eddy Valve Co....	1 valve.....	8.25

1883.

Aug. 27,	J. L. Mott Iron Works,	
	New York City.....	Drinking fountain.....\$ 67.20
"	The Eddy Valve Co....	Valves..... 2,311.15
"	W. R. & W. Havens....	Excavating.... 481.75
"	W.H.H. Newman & Co.	Lead..... 921.98
"	Geo. B. Hayes.....	Special castings..... 84.26
"	Geo. B. Hayes.....	Pipe..... 1,113.10
"	Geo. B. Hayes.....	Pipe..... 3,436.03
"	Geo. B. Hayes.....	Pipe..... 908.52
"	Geo. B. Hayes.....	Pipe..... 4,012.30
"	Geo. B. Hayes.....	Castings..... 45.18
"	Geo. B. Hayes.....	Pipe..... 1,231.12
"	Geo. B. Hayes.....	Pipe..... 3,607.10
"	Geo. B. Hayes.....	Castings..... 137.11
"	Geo. B. Hayes.....	Pipe..... 3,455.78
"	Geo. B. Hayes.....	Pipe..... 661.74
"	Geo. B. Hayes.....	Special castings..... 121.60
"	G. C. Grimard, Cash'r.	Weekly pay roll..... 358.04
"	B. Cunningham.....	Excavating..... 1,000.00
Sept. 3,	Connolly Bros. & Co....	Gasket..... 102.40
"	Young, Lockwood & Co.	Stationery..... 47.98
"	G. B. Hayes.....	Cast iron pipe..... 3,410.56
"	G. B. Hayes.....	Pipe and cartage..... 67.41
"	G. C. Grimard, Cash'r.	Weekly pay roll..... 1,180.79
"	B. Cunningham.....	Excavating..... 500.00
Sept. 10,	Jno. C. Post.....	Brushes and lead..... 4.90
"	Buffalo Gas Light Co..	Coke..... 18.00
"	Bingham & Morgan....	Valve boxes..... 306.91
"	Weed & Co.....	Sundries..... 8.96
"	C. J. Hamilton.....	Lumber..... 10 59
"	Geo. B. Hayes.....	Cast iron pipe..... 3,362.06
"	G. C. Grimard, Cash'r.	Weekly pay roll..... 1,218.87
Sept. 17,	The Eddy Valve Co....	Valves..... 167.20

THE BUFFALO CITY WATER WORKS.

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Sept. 17,	D. W. Hodge.....	Roofing.....	\$ 36.08
"	J. Laycock & Son.....	Lumber.....	25.62
Sept. 10,	Hurd & Hauenstein...	Lumber.....	44.34
"	James Boland.....	Building valve house...	1,249.85
"	J. McCarthy.....	Removing obstructions from tunnel and inlet pier.....	800.00
Sept. 24,	G. C. Grimard, Cash'r.	Weekly pay roll.....	1,153.68
"	E. & B. Holmes.....	Lumber.....	145.00
"	G. B. Starbird.....	Cresting.....	36.80
Oct. 1,	James Boland.....	Labor.....	8.75
"	Farrar & Trefts.....	Labor and material....	15.25
"	James Boland.....	Labor.....	40.10
"	Niagara Bridge Works.	Building bridge.....	530.00
"	Sutton & Wood.....	Sundries.....	435.54
"	Geo. B. Hayes.....	Special castings.....	147.78
"	Geo. B. Hayes.....	Special castings and labor.....	156.87
"	Geo. B. Hayes.....	Cast iron pipe.....	1,473.28
"	Geo. B. Hayes.....	Special castings.....	64.53
"	Geo. B. Hayes.....	Cast iron pipe.....	1,643.43
"	B Cunningham.....	Excavating.....	2,000.00
"	G. C. Grimard, Cash'r.	Weekly roll, Oct. 6th...	784.12
Oct. 8,	G. C. Grimard, Cash'r.	Monthly pay roll, Oct..	4,180.42
"	G. C. Grimard, Cash'r.	Weekly pay roll, Sept. 29th.....	894.20
Oct. 14,	Weed & Co.....	Sundries.....	12.00
"	Lee, Smith & Moore...	Coal.....	4.50
"	John C. Post.....	Sundries.....	5.25
"	Bingham & Morgan...	Valve boxes.....	292.83
"	Geo. B. Hayes.....	Cast iron pipe.....	2,552.40
"	Geo. B. Hayes.....	Cast iron pipe.....	2,584.10
"	Geo. B. Hayes.....	Special castings.....	113.54

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Oct. 14,	Maytham Line of Tugs.	Use of tugs in removing obstructions from inlet pier and Bird Island pier valve.....	\$ 582.00
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	729.83
Oct. 22,	Alfred Thoms.....	Constructing fence.....	254.50
"	S. B. Cowing.....	Coal tar.....	2.00
"	The Courier Co.....	Copy Daily Courier....	.71
"	E. G. Felthousen.....	Sundries.....	6.00
"	Powell & Plimpton....	Sundries.....	1.60
"	Buffalo Gas Light Co..	Coke and cartage.....	22 50
"	Jos. Bourgnon.....	Charcoal.....	3.00
"	F. Williams & Co	1 ton coal.....	4.50
"	Geo. B. Hayes.....	Cast iron pipe.....	1,253.44
"	Geo. B. Hayes.....	Special castings.....	187.38
"	Geo. B. Hayes.....	Cast iron pipe.....	1,757.24
"	B. Cunningham.....	Excavating	2,000.00
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	758.12
Oct. 29,	G. C. Grimard, Cash'r.	Weekly pay roll.....	625.74
"	G. C. Grimard, Cash'r.	Wages, October.....	3,783.17
Nov. 12,	C. E. Harries.....	Wood plugs.....	5.00
"	Felthousen & Russell..	Sundries.....	8.04
"	F. S. Pease.....	Oil.....	6.63
"	Williamsville Lime Co.	Cement.....	5.00
"	Norman E. Mack.....	Advertising.....	12.00
"	Bingham & Morgan ...	Valve boxes	526.92
"	C. J. Hamilton.....	Lumber.....	52.50
"	E. J. Felthousen	Sundries.....	18.03
"	Pratt & Co.....	Sundries.....	64 96
"	B. Cunningham.....	Excavating	1,500.00
"	Geo. B. Hayes.....	Cast iron pipe.....	1,777.88
"	Geo. B. Hayes.....	Labor and material....	97.36
"	Geo. B. Hayes.....	Cast iron pipe.....	2,661.26

THE¹ BUFFALO CITY WATER WORKS.

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Nov. 12,	Geo. B. Hayes.....	Carting	\$ 66.54
"	Geo. B. Hayes.....	Carting	22.00
"	Geo. B. Hayes.....	Hydrants and labor....	496.00
"	Geo. B. Hayes.....	Cast iron pipe	1,460.36
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	832.00
Nov. 19,	E. H. Butler	Pub. Prop.....	28.00
"	J. Bourgnon.....	Charcoal.....	1.50
"	Vosburgh & Baker....	Manilla rope.....	4.96
"	James Boland.....	Labor and material....	363.57
"	A. P. Mason.....	Gasket	302.87
"	Geo. B. Hayes.....	Cast iron pipe	2,167.88
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	363.06
Nov. 26,	D. M. Greene.....	Professional services...	170.90
"	Thomas Thompson....	Sawdust.....	3.75
"	R. G. Drullard.....	Hydrants.....	9.00
"	Buffalo Scale Co.....	Testing scales.....	2.75
"	Buffalo Scale Co.....	Testing scales.....	4.80
"	Buffalo Scale Co.....	Testing scales.....	2.80
"	G. B. Hayes.....	Cast iron pipe	1,008.06
"	G. B. Hayes.....	Repair hydrants.....	20.00
"	C. E. Williams.....	Repaving over water trench.....	126.30
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	298.33
Dec. 3,	Geo. B. Hayes.....	No. 88, cast iron pipe..	493.56
"	W. C. McDonald.....	Cleaning Elk street....	75.00
"	Buffalo Scale Co.....	Repairing scale frame..	5.00
"	Pratt & Co.....	Sundries.....	37.07
"	B. Cunningham.....	Excavating trench, Main street	3,500.00
"	G. C. Grimard, Cash'r.	Pay roll, December....	3,865.76
"	G. C. Grimard, Cash'r.	Weekly pay roll, Decem- ber 8th.....	243.45
"	G. C. Grimard, Cash'r.	Weekly pay roll, Decem- ber 1st.....	251.99

1883.

Dec. 17,	G. C. Grimard, Cash'r.	Weekly pay roll, December 15th.....	\$ 137.76
Dec. 24,	G. B. Hayes.....	No. 91, cast iron pipe..	150.51
"	G. B. Hayes.....	No. 89, cast iron pipe..	234.94
"	G. B. Hayes.....	No. 90, labor and material	29.03
"	Walworth M'f'g Co....	Labor and material....	41.92
"	W. C. McDonald.....	Gravel, etc.....	46.90
"	Lee, Smith & Moore....	1 ton Bloss. coal	4.50
"	Bingham & Morgan...	Valve boxes.....	167.09
"	Buffalo Gas Light Co..	100 bushel coke and cartage.....	9.00
"	J. T. Avery.....	Turning 6-inch shaft...	1.00
"	E. G. Felthousen.....	Sundries.....	6.50
"	G. C. Grimard, Cash'r.	Pay roll, Dec., 1883....	4,385.36
"	W. R. & W. Havens...	Excavating William st., etc.....	803.76
"	B. Cunningham.....	Excavating, Main st ...	3,000.00
Dec. 31,	Machworth Bros	Labor and material....	9.18
"	Bingham & Morgan ...	Valve boxes.....	316.94
"	Geo. B. Hayes.....	Special castings	47.57
"	Geo. B. Hayes.....	Hydrant repairs.....	5.80
"	Frank Williams & Co...	1 ton coal.....	4.25
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	29.77
"	James Boland.....	Repaving over trenches	729.14
"	Geo. B. Hayes.....	Special castings.....	18.59
"	B. Cunningham.....	Excavating	3,712.10
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	15.00
"	N. Y. C. & H. R. R. Co.	Freight charges.....	3.02
"	N. Y. L. E. & W. R. R. Co.	Freight charges.....	12.23

 \$200,029.90

THE BUFFALO CITY WATER WORKS.

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HYDRANT AND WATER FUND.

1883.

Jan.	29,	G. C. Grimard, Cash'r.	Pay roll, January.....	\$3,381.16
Feb.	5,	G. C. Grimard, Cash'r.	Wages, laborers, thaw- ing hydrants	80.33
Feb.	12,	L. H. Knapp, Supt....	P. O. stamps and inci- dental expenses.	50.00
Feb.	19,	Hardwicke & Ware....	Labor and material....	16.94
"		Buffalo Gas Light Co..	Labor and material....	14.40
"		D. J. Brown.....	Compounds.....	38.50
"		The Courier Co	Copy Daily Courier....	3.50
"		Weed & Co.....	Material.....	11.94
"		G. W. Shaw.....	White waste.....	45.81
"		Frank Williams & Co..	Coal.....	22.50
"		Hamilton Cherry.....	Hay.....	19.43
"		Goodyear Rubber Co..	Hose packing, etc.....	26.22
"		The Courier Co.....	Stationery	133.03
"		J. L. Ring & Co.....	Oats and feed.....	33 75
"		The Telegraph Pub- lishing Co.....	Adv. Dodge farm.....	1.50
"		E. G. Felthousen.....	Labor and material....	53.75
"		S. Chamberlain	Labor and material....	17.65
"		C. L. Pond.....	Meter seals, etc.....	19.25
"		H. McDonald.....	Horse shoeing & repairs	10.65
"		Young, Lockwood & Co.	Stationery.....	8.85
"		Drullard & Hayes.....	No. 7, repairing hydrant	2.00
"		G. C. Grimard, Cash'r.	Weekly pay roll, thaw- ing hydrants.....	99.75
"		G. C. Grimard, Cash'r.	Pay roll, February.....	3,150.38
"		A. Geekie.....	Sea grass.....	27.80
Mar.	5,	F. S. Pease.....	Merchandise.....	9.07
"		Henry Nauert.....		104.72
"		Bigelow Bros.....	Printing.....	10.00
"		Pratt & Co.....	Merchandise.....	64.74

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1883.

Mar. 5,	Taylor & Crate.....	Lumber.....	\$ 2.04
"	Val. Neureiter.....	Hydrant staves.....	40.64
"	Hardwicke & Ware....	Labor and material....	39.93
"	National Meter Co....	Repairs, meters.....	15.15
"	S. Chamberlain.....	Labor and material....	4.91
"	J. W. Atwood.....	Labor, repair barn....	30.20
"	Ulbrich & Kingsley ...	Drawing paper.....	9.50
"	M. Riter	Labor, repair boiler....	121.47
"	Farrar & Trefts.....	Labor and material....	197.70
"	Lenhard Miller.....	Wagon repairs.....	34.50
"	Felthousen & Russell..	Labor and material....	27.05
"	G. C. Grimard, Cash'r.	Wages, laborers, thaw- ing hydrants	77.82
Mar. 12,	Goodyear Rubber Co..	Packing, etc	18.13
"	The Courier Co.....	Printing, etc	35.50
"	M. Riter	Repairs, boiler	6.63
"	Weed & Co.....	Axes	2.00
"	R. E. Andrews.....	2 thermometers.....	2.00
"	H. McDonald.....	Horse shoeing.....	8.00
"	John C. Post.....	Oils.....	4.00
"	Buffalo Volksfreund...	Advertising.....	9.00
"	Geo. E. Newman.....	Bowl and pitcher.....	.75
"	Frank Williams & Co..	Coal	22.50
"	Nelson Holland.....	Lumber.....	28.22
"	William A. Filsinger & Bro.....	Oats	60.46
"	Buffalo Gas Light Co..	Coke.....	2.25
"	Hurd & Hauenstein...	Lumber	3.74
"	C. J. Hamilton	Lumber	4.63
"	M. Riter	Boiler repairs.....	243.61
"	M. Riter	Boiler repairs	660.33
"	E. G. Felthousen	Material.....	51.70
"	G. C. Grimard, Cash'r.	Weekly roll, thawing hydrants.....	94.06

THE BUFFALO CITY WATER WORKS.

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Mar.	12,	G. C. Grimard, Cash'r.	Weekly roll, thawing hydrants.....	\$ 94.06
Mar.	26,	G. C. Grimard, Cash'r.	Weekly roll, thawing hydrants.....	123.94
April	2,	Henry Nauert	Stationery	48.00
"		Frederick Held	Advertising.....	.75
"		Buffalo Evening News.	Advertising.....	7.00
"		Buffalo Evening News.	Advertising.....	2.00
"		Buffalo Evening News.	Advertising.....	9.75
"		Evening Telegraph Co.	Advertising.....	7.00
"		Hardwicke & Ware....	Bushings .....	.76
"		Sam'l McCutcheon	Boiler compound.....	18.00
"		Hamilton Cherry.....	Hay.....	19.08
"		S. Chamberlain.....	Labor and material....	4.00
"		F. S. Pease.....	Oil	89.98
"		J. L. Ring & Co.....	Feed.....	9.25
"		Pratt & Letchworth....	Wrenches.....	5.25
"		Given & Dayton.....	Slabs and hard wood ..	65.00
"		Jabesh Harris.....	Soft soap.....	12.50
"		Jabesh Harris.....		20.00
"		The Telephone Co....	Rent.....	152.49
"		Felthousen & Russell..	Labor and material....	18.00
"		G. C. Grimard, Cash'r.	Pay roll, March.....	3,628.95
"		G. C. Grimard, Cash'r.	Weekly roll, thawing hydrants.....	104.19
April	9,	Henry Becker & Co...	Harness repairs	13.98
"		Irlbacker & Davis....	Labor and material....	50.30
"		Hugh McDonald.....	Horse shoeing.....	11.60
"		Schlund & Doll	Wash stand.....	1.50
"		Hoddick & Co.....	Frames.....	4.00
"		S. Chamberlain.....	Repairs, wagons.....	7.25
"		Frank Williams & Co..	Coal.....	11.25
"		Weed & Co.....	Merchandise	1.62

1883.

April 9,	John C. Post.....	Glass and oil	\$ 5.15
"	Lenhard Miller.....	Repairing wagon.....	5.50
"	E. G. Felthousen.....	Labor and material....	63.98
"	G. C. Grimard, Cash'r.	Weekly roll, thawing hydrants	176.98
"	G. C. Grimard, Cash'r.	Weekly roll, thawing hydrants.....	124.00
April 23,	L. H. Knapp, Supt....	P. O. stamps, etc	50.00
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	151.20
"	Star Oil Co.....	Oil.....	2.50
"	Bean, Felthousen & Co.	Water glass.....	.36
May 14,	James D. Warren	Advertising.....	12.75
"	N. Holland.....	Lumber.....	32.77
"	J. L. Ring & Co.....	Feed.....	9.50
"	A. H. Brown.....	Labor and material	20.48
"	H. R. Worthington....	Meter counters.....	30.50
"	Ulbrich & Kingsley...	Drawing paper.....	19.00
"	The Evening Telegraph.	Advertising.....	5.00
"	Given & Dayton.....	Hard wood	12.50
"	Goodyear Rubber Co..	Chic hose.....	6.26
"	John Dietzer.....	Constructing sidewalk .	271.56
"	Farrar & Trefts.....	Labor and material....	49.02
"	J. N. Matthews.....	Advertising.....	12.00
"	C. J. Hamilton.....	Lumber, etc.....	6.75
May 21,	H. McDonald.....	Horse shoeing.....	8.80
"	H. Cherry.....	Hay.....	23.17
"	Goodyear Rubber Co..	Sundries.....	28.65
"	John C. Post.....	Lead and oil.....	8.18
"	Geo. W. Shaw.....	White waste.....	9.75
"	Union Water Meter Co.	Meter registers.....	82.50
"	The Courier Co.....	Advertising.....	4.30
"	Reinecke & Zesh.....	Advertising.....	16.75
"	Wm. A. Filsinger & Bro.....	Feed.....	61.50

THE BUFFALO CITY WATER WORKS.

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May 21,	Hardwicke & Ware....	Labor and material....	\$ 12.96
"	M. Riter.....	Labor and material....	9.00
"	F. S Pease.....	Lead, oil, etc.....	88.82
"	Ulbrich & Kingsley...	Drawing paper.....	9.50
"	Felthousen & Russell..	Sundries.....	4.28
"	The Courier Co.....	Cash registers.....	7.50
"	E. G. Felthousen.....	Labor and material....	2.57
"	Mary Bosche.....	1 new wagon.....	135.00
"	Weed & Co.....	Sundries.....	2.60
"	Young, Lockwood & Co	Stationery	42.68
"	M. Riter	Labor and material....	77.64
"	Pratt & Co.....	Sundries.....	21.19
"	Fries & Co.....	Corporation cocks.....	342.50
June 10,	Star Oil Co.....	Oil.....	23.18
"	John C. Post.....	Ven. red and brushes..	2.51
"	James D. Warren.....	Advertising.....	29.75
"	Wm. McDonald.....	Teaming	3.00
"	Powell & Plimpton....	Merchandise.....	3.65
"	Hugh McDonald.....	Horse shoeing.....	13.70
"	Buffalo Evening News.	Advertising.....	8.00
"	C. J. Hamilton.....	Lumber.....	1.50
"	Hardwicke & Ware....	Labor and material....	2.89
"	Goodyear Rubber Co..	Packing, etc.....	39.97
"	C. W. Miller.....	Coach hire.....	6.50
"	Knowles Steam Pump		
	Works	Valve material.....	325.00
"	Holly Manf'g Co.....	Brass, etc.....	20.25
"	D. McNaughton.....	Labor and material....	17.75
"	Wheeler & Davis.....	Chain.....	2.12
"	F. S. Pease.....	Oil.....	4.20
"	Henry Nauert.....	Printing.....	130.90
"	J. L. Ring & Co.....	Feed.....	9.50
"	Ulbrich & Kingsley....	Drawing paper.....	9.50

1883.

June 10,	Nelson Holland.....	Lumber.....	\$ 14.21
"	Bickford & Curtiss....	Leather	11.50
"	Farrar & Trefts.....	Labor and material....	11.80
"	S. D. Colie.....	Lumber	22.58
"	C. J. Heinold.....	Sundries.....	14.85
"	W. A. Case & Son	Sundries.....	6.41
"	G. C. Grimard, Cash'r.	Express charges and P. O. stamps.....	24.07
June 17,	The Telegraph Pub. Co.	Advertising.....	7.00
"	E. G. Felthousen.....	Labor and material. ..	2.25
"	Hall & Sons.....	Kaolin	2.25
"	A. H. Brown.....	Labor and material....	38.36
June 25,	Buffalo Evening News.	Advertising.....	9.75
"	N. E. Mack.....	Printing.....	34.00
"	Buffalo Evening News.	Advertising.....	6.00
"	Vosburgh & Baker....	Merchandise.....	85.42
"	Pratt & Co.....	Sundries.....	8.95
"	G. C. Grimard, Cash'r.	P. O. stamps.....	25.00
July 2,	The Courier Co.....	Printing.....	63.00
"	Atlas Milling Co.....	Feed.....	24.25
"	Felthousen & Russell..	Oil cans, etc.....	3.71
"	Fries & Co... ..	Corporation cocks.....	398.79
"	Buffalo Gas Light Co..	Labor and material....	35.15
July 9,	E. G. Marvin, agent...	Paper.....	7.20
"	Hardwicke & Ware....	Merchandise.....	3.70
"	F. Williams.....	Coal	4.50
July 16,	M. E. Beebe.....	Drawing.....	30.00
"	Frank Williams & Co..	1 ton coal.....	4.25
"	Hugh McDonald.....	Horse shoeing.	10.00
"	W. A. Filsinger & Bro.	Feed.....	54.00
"	L. A. Daniels.....	1 bay horse.....	180.00
"	G. W. Shaw.....	Packing.....	17.26
"	J. Bourgnon.....	Charcoal.....	1.50

1883.

July 16,	Bingham & Morgan...	Sundries.....	\$ 3.50
"	J. Josephs.....	Lettering buggy.....	7.50
"	National Meter Co....	Meter movements.....	63.00
"	Star Oil Co.....	Cylinder oil.....	45.68
"	Buffalo Gas Light Co..	Coke.....	18.00
"	J. Lyth & Son.....	Tiles, etc.....	48.50
"	Goodyear Rubber Co..	Gasket	9.12
"	P. C. Doyle, agt.....	Coal.....	32.46
"	Nelson Holland.....	Hemlock	6.55
"	Lehigh Valley Coal Co.	Coal.....	4,365.53
"	Lee, Smith & Moore...	Coal	4,347.07
July 30,	Lenhard Miller.....	Wagon repairs.....	25.55
"	Felthousen & Russell..	Merchandise.....	17.56
"	Connelly Bros. & Co...	Rope.....	97.20
"	The Courier Co.....	Advertising.....	5.28
"	Farrar & Trefts.....	Labor and material....	52.30
"	J. Harris, Agent.....	Soap.....	25.00
"	S. McCutcheon.....	Boiler compound.....	41.25
"	National Meter Co....	Meter glasses.....	18.00
"	S. D. Colie.....	Lumber.....	90.44
"	A. H. Brown.....	Labor and material....	24.34
"	The Courier Co.....	2 copies City Directory.	8.00
"	Hamilton Cherry.....	Hay.....	23.11
"	Fries & Co.....	Brass plugs.....	10.80
Aug. 27,	Sherman S. Jewett & Co.	1 stove door.....	.36
"	Buffalo Gas Light Co..	Coke.....	4 50
"	Bingham & Morgan...	Valve boxes.....	545.68
"	F. S. Pease.....	Oil.....	31.38
"	John C. Harvey.....	Repairing wagons.....	35.90
"	John C. Post	Paint.....	8.50
"	Fries & Co.....	Corporation cocks.....	18 60
"	John Chamberlain.....	Lowering pipe, mak- ing connections, etc..	45.00

1883.

Aug. 27,	Wm. McDonald.....	Gravel	\$ 40.00
"	Williamsville Lime Co.	1 barrel lime.....	1.00
"	Hardwicke & Ware....	Labor and material....	2.22
"	Ludlow Valve M'f'g Co.	Sundries.....	139.29
"	Vosburgh & Baker....	Sundries.....	9.92
"	Ernst Besser & Bro....	Drawing paper.....	22.50
"	Irlbacker & Davis.....	Sundries.....	10.34
"	Hugh McDonald.....	Horse shoeing.....	10.00
"	Star Oil Co.....	Oil.....	23.63
"	Irlbacher & Davis.....	10 plugs.....	7.50
"	Henry Burge.....	Saw dust.....	15.00
"	Ohio Oil Co.....	Turpin oil.....	26.25
"	Jos. Supple.....	Repairs on row boat...	5.00
"	J. N. Matthews.....	Advertising.....	37.13
"	Barnd & Geiger.....	Connecting service pipe	8.08
"	Adams, Moulton & Co.	Lumber	484.52
"	D. McNaughton.....	Lumber and material..	97.14
"	Weed & Co.....	Sundries.....	18.75
"	Doyle & Mahar.....	Oil.....	26.00
"	S. McCutcheon.....	Sundries.....	20.25
"	C. E. Brinkworth.....	Badges.....	11.50
"	C. J. Heinold.....	Sundries.....	24.50
"	A. Gakell.....	Hay for bedding.....	11.44
"	Loegler & Ladd.....	Repairing hay cutter...	1.75
"	Buffalo Scale Co.....	Testing scales.....	3.20
"	Peter Maischoff.....	Recutting files.....	9.94
"	H. Becker & Co.....	Repairing harness, etc.	44.77
"	Hall & Son.....	Fire brick.....	25.00
"	The Eddy Valve Co....	1 stem and nut.....	4.50
"	Farrar & Trefts.....	Labor and material....	31.01
"	J. Auchinvole, agt....	Use of ferry boat.....	90.00
"	The Bell Telephone Co.	Telephone rent.....	147.50
"	Goodyear Rubber Co..	Packing	60.94

1883.

Aug. 27,	Cornell Lead Co.....	Lead.....	\$ 888.22
"	Lee, Smith & Moore...	Coal	8,476.25
"	Fries & Co.....	Corporation cocks.....	376.07
"	Pratt & Co.....	Sundries.....	47.37
"	Pratt & Co.....	Sundries.....	127.71
Sept. 3,	Norman E. Mack.....	Printing, etc.....	20 50
"	J. Val. Neureiter.....	Staves.....	50.00
"	Plumb, Burdick & Barnard.....	Machine bolts.....	1.38
"	E. G. Felthousen.....	Material.....	17 19
"	Young, Lockwood & Co.	Stationery.....	34 75
"	John Lyth.....	Material.....	202.90
"	Young, Lockwood & Co.	Stationery.....	15.15
"	Hardwicke & Ware....	Labor and material....	15.70
"	G. C. Grimard, Cash'r.	P. O. stamps.....	25.00
"	Lee, Smith & Moore...	Coal.....	7,914.45
"	Bott & Hughes.....	Labor and material....	238.40
"	G. C. Grimard, Cash'r.	Pay roll, August.....	3,957.24
Sept. 10,	Felthousen & Russell..	Sundries.....	13.20
"	G. W. Shaw.....	Valve repairs.....	25.20
"	H. McDonald.....	Horse shoeing.....	10 60
"	Norman E. Mack.....	Printing.....	70.00
"	Weed & Co.....	Sundries.....	5.10
"	A. H. Brown.....	Labor.....	8.00
"	Goodyear Rubber Co..	Rubber packing.....	48.19
"	J. V. Marion.....	Feed.....	46.88
"	N. P. Hinckley, V. S..	Vet. services.....	12.00
Sept. 17,	Atlas Milling Co.....	Feed.....	21.05
"	S. Sommerville & Son.	Vet. services.....	11.75
Sept. 10,	Hall & Sons.....	Kaolin	4.50
"	Lock & Melville.....	Repairs	25.45
"	James Boland.....	Repairing and painting at Holly House.....	40.25

1883.

Sept. 10,	James Boland.....	Laying sewer and cementing wall.....	\$ 108.75
"	James Boland.....	Rep. at L. Eng. House.	362.70
"	Lenhard Miller.....	Wagon repairs.....	32.36
"	G. C. Grimard, Cash'r.	Incidental expenses....	100.00
"	Bott & Hughes.....	Painting reservoir fence	358.00
"	Fries & Co.....	Corporation cocks.....	372.09
Oct. 1,	C. Kiefer.....	Feed.....	60.00
"	Lake Erie Boiler Works.	Labor and material....	59.90
"	Taylor & Crate.....	Lumber.....	3.20
"	Hardwicke & Ware....	Sundries	4.48
"	F. S. Pease.....	Oil.....	23.50
"	Farrar & Trefts.....	Labor and material....	141.60
"	Ulbrich & Kingsley...	Sundries	14.00
"	James Boland.....	Labor.....	52.50
"	J. Harris, Agent.....	Soft soap.....	12.50
"	S. D. Colie.....	Lumber	573.84
"	F. S. Pease.....	Oil.....	60.21
"	Lee, Smith & Moore...	Coal.....	2,842.66
"	Jeremiah McCarthy...	Examination inlet pier.	935.00
Oct. 14,	Weed & Co.....	Sundries.....	3.70
"	Hugh McDonald.....	Horse shoeing.....	11.20
"	Goodyear Rubber Co..	Coat	4.00
"	Brady & Maltby.....	Coping and clamps....	75.00
"	G. W. Shaw.....	Sundries....	57.43
"	Felthousen & Russell..	Sundries.....	4.65
"	Lee, Smith & Moore...	Coal.....	17.85
"	John C. Post	Sundries,.....	6.05
"	John Chamberlain....	Labor.....	25.50
"	Lee, Smith & Moore ..	Unloading coal.....	29.45
"	John Lyth.....	Sundries.....	69.50
"	Vosburgh & Baker....	Manilla rope.....	13.96
"	C. E. Walbridge.....	Cash boxes, etc.....	12.20

THE BUFFALO CITY WATER WORKS.

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1883.

Oct. 22,	L. Miller.....	Wagon repairs.....	\$ 31.05
"	W. Filsinger & Bro....	Hay.....	32.04
"	Hamilton Cherry.....	Hay.....	24.68
"	The Courier Co	Copy Daily Courier....	5.00
"	E. G. Felthousen.....	Sundries	43.05
"	Powell & Plimpton....	Sundries.....	4.17
"	National Meter Co....	Meter glasses.....	3.00
"	Ludlow Valve M'f'g Co.	Fire hydrants.....	768.75
"	Reinecke & Zesch.....	Advertising.....	21.75
"	C. J. Hamilton.....	Door frame.....	2.00
"	Norman E. Mack.....	Stationery	58.50
"	John Reiman...:.....	Labor and material....	26.19
"	R. Chilcott.....	Labor.....	244.76
"	L. Miller.....	Wagon repairs.	8.35
"	L. Miller.....	Wagon repairs.....	26.10
"	G. C. Grimard, Cash'r..	P. O. stamps.....	25.00
"	Bott & Hughes.....	Painting fences.....	107.80
Nov. 12,	John C. Post.....	Oil.....	8.10
"	Hardwicke & Ware....	Sundries.....	3.33
"	A. H. Brown.....	Labor and material....	7.80
"	Felthousen & Russell..	Sundries.....	3.80
"	Goodyear Rubber Co..	Packing.....	20.35
"	Hall & Sons.....	Kaolin.....	2.25
"	F. S. Pease.....	Oil.....	26.00
"	Holly Manu'f'g Co....	Labor and castings....	46.00
"	F. Held.....	Advertising Dodge farm	2.75
"	Jos. Rehm.....	Washing towels.....	7.50
"	Ludlow Valve M'f'g Co.	Hydrants.....	345.00
"	W. W. Tupper & Co...	Grates	55 89
"	G. W. Shaw.....	Sundries.....	157.91
"	Norman E. Mack.....	Advertising.....	74.00
"	Bott & Hughes.....	Painting, etc.....	521.20
"	C. J. Hamilton.....	Lumber	33.68

1883.

Nov. 12,	E. G. Felthousen.....	Sundries.....	\$ 2.00
"	Pratt & Co.....	Sundries	108.76
"	Cornell Lead Co.....	Pig lead.....	862.75
Nov. 19.	A. Geekie.....	Bedding.....	10.91
"	Buffalo Gas Light Co..	Coke.....	18.00
"	Vosburgh & Baker....	Manilla rope.....	4.96
"	James Boland.....	Labor and material....	4.60
"	Machwirth Bros.....	Stove.....	19.00
"	Adams, Moulton & Co.	Lumber.....	41.00
"	S. D. Colie.....	Lumber.....	7.65
"	J. V. Marion	Corn.....	7.22
"	C. Keifer	Oats	47.87
"	G. C. Grimard, Cash'r.	P. O. stamps.....	25.00
"	Lee, Smith & Moore...	Coal.....	9,009.83
Nov. 26,	Bickford & Curtiss....	Lace, etc.....	2.37
"	Young, Lockwood & Co.	Sundries.....	66.84
Dec. 3,	Hardwicke & Ware....	Solder.....	1.16
"	Hawley Kleine.....	Labor and material....	6.25
"	J. N. Adam & Co	Horse blankets.....	13.50
"	Ludlow Valve M'f'g Co.	10 hydrants.....	307.50
"	Sutton & Wood.....	1 iron tank.....	55.00
"	H. R. Worthington....	Labor and material....	2.00
"	Atlas Milling Co.....	Feed.....	9.15
"	Fries & Co.....	Corporation cocks....	348.67
"	Hugh McDonald.....	Horse shoeing.....	19.20
"	Pratt & Co.....	Sundries.....	14.58
Dec. 17,	Lee, Smith & Moore...	Coal.....	8,591.33
"	Val. Neureiter.....	Staves.....	88.80
"	James D. Warren	Advertising.....	5.00
"	Andrew Geckel.....	Hay.....	118.06
"	Jacob Ginther.....	Horse trough.....	176.00
"	Felthousen & Russell..	10 shade holders.....	.25
"	Williamsville Lime Co..	1 barrel lime.....	1.00

THE BUFFALO CITY WATER WORKS.

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1883.

Dec. 17,	F. S. Pease.....	Cylinder oil.....	\$ 51.00
"	Hugh McDonald.....	Horse shoeing.....	9.20
"	Lee, Smith & Moore....	2 tons coal.....	10.60
Dec. 24,	Irlbacker & Davis.....	Labor and material....	1.00
"	Lee, Smith & Moore ..	Trimming coal.....	28.48
"	H. Cherry.....	Hay.....	48.24
"	Hardwicke & Ware....	Labor and material....	49.42
"	E. & B. Holmes.....	Lumber	11.88
"	Jabesh Harris.....	Soft soap.....	12.50
"	French & Kirkholder..	Stable supplies.....	1.40
"	Pratt & Co	Sundries.....	54.81
"	Hardwicke & Ware....	Labor and material....	2.88
"	Vosburgh & Baker....	Sundries.....	.93
"	Henry Becker & Co...	Harness repairs	11.20
"	Jno. C. Post.....	Red lead	1.08
"	G. W. Shaw	Piston packing.....	15.00
"	Weed & Co.....	Merchandise.....	15.63
"	Nelson Holland.....	Lumber	71.20
"	G. W. Shaw.....	Valve rubber.....	104 40
"	A. H. Brown.....	Copper gasket, etc....	41.57
"	Goodyear Rubber Co..	Pure packing.....	17.06
"	Christ Stevens.....	Facing rubber valves...	14.50
"	Brush Bros.....	10,000 common brick...	80.00
"	H. D. Tyler.....	Washers.....	2.18
"	Valentine & Son.....	Repair padlocks	1.50
"	Charles Kiefer.....	Straw.....	61.01
"	F. S. Pease.....	Oil.....	83.18
"	Fries & Co.....	Labor and material....	9.10
"	Lee, Smith & Moore...	Trimming coal.....	27.99
"	Jno C. Post.....	Oil	4.49
"	Felthousen & Russell..	Sundries.....	11.76
"	Lee, Smith & Moore...	Hoisting coal	93.64
"	H. Becker & Co.....	Harness repairs.....	37.72

1883.

Dec. 24,	E. G. Felthousen.....Sundries	\$ 29.19
"	Hersee & Co	Labor and material.... 25.00
Dec. 31,	Young, Lockwood & Co. Stationery	11.05
"	The Courier Co.....Daily Courier.....	2.50
"	C. J. Merrill.....Sundries.....	31.75
"	C. J. Heinold.....Pomade	10.00
"	Farrar & Trefts.....Labor and material....	966.34
"	Machwirth Bros.....Labor and material....	122.21
"	Farrar & Trefts.....Labor and material....	98.96
"	Farrar & Trefts.....Labor and material....	27.13
"	Farrar & Trefts.....Labor and material....	78.02
"	Irlbacker & Davis.....Sundries.....	3.46
"	C. C. Haines	Bungs..... 7.50
"	Farrar & Trefts.....Labor and material....	277.78
"	Farrar & Trefts.....Labor and material....	78.71
"	Norman E. Mack	Stationery..... 1.008
"	Weed & Co.....Sundries	12.72
"	E. G. Felthousen	Sundries..... 5.50
"	Machwirth Bros.....Labor and material....	768.18
"	Jno. C. Harvey	Labor and material.... 5.50
"	Geo. M. Shaw.....Packing	7.20
"	Farrar & Trefts.....Labor and material....	148.25
"	S. McCutcheon	Boiler compound..... 18.75
"	Powell & Plimpton....Sundries.....	.36
"	Lee, Smith & Moore...Coal	29.75
"	Farrar & Trefts.....Labor and material....	228.17
"	Fries & Co.....Corp. cocks & sundries	6.75
"	Goodyear Rubber Co..Sundries.....	12.65
"	Nelson Holland.....Lumber	59.49
"	C. J. Hamilton.....Lumber	34.55
"	H. G. Trout.....Labor and material....	61.58
"	James Boland.....Repairs, Worth. boilers.	10 50
"	Atlas Milling Co.....Feed.....	24.80

1883.

Dec. 31,	R. H. Thayer & Co . . .	Hydrant boxes	\$ 692.45
"	James Boland	Repairing trenches	975.14
"	Maytham Line of Tugs.	Use of tugs	10.00
"	Henry Burge	Saw dust	9.00
"	S. Chamberlain	Wagon repairs	29.85
"	S. Chamberlain	Wagon repairs	28.54
"	Buffalo Gas Light Co..	Repair service pipe	16.83
			<hr/>
			\$87,193 53

Calo on hand January 1, 1883, 5,140 tons.

METER STATEMENT

Statement Showing Revenue per Meter Measurement for the Twelve Months Ending Jan. 1, 1884.

Consumer.	Location.		No. Meters.	Size, Inch.	Kind.	Cost.	Revenue.
	No.	Street.					
Adam, Meldrum & Anderson	396	Main	1	Elev. hoist	Howard		\$ 75.38
Barnes, Bancroft & Co.	260	Main	1	Elev. hoist	Howard		90.32
Benz, J.	813	Broadway	1	1	Union	27.00	3.73
Benz, J.	815	Broadway	1	1	Union	27.00	11.19
Beard, P. D.	263	Washington	1	Elev. hoist	Howard		57.64
Barnum, S. O. & Son	265	Main	1	Elev. hoist	Howard		142.62
Bell, R. W. & Co.	77	Washington	1	2	Worthington	\$ 51.52	146.64
Beck, Magnus	467	N. Division	2	2	Gem	49.50	225.02
Boller & Rectenwalt	248	Carroll	1	1 1/2	Union	42.00	121.76
Brock & Wiener	64	Exchange	1	1 1/2	Union	42.00	77.57
Buffalo Car Mfg. Co.	1213	Clinton	1	4	Gem	198.00	273.86
Buffalo Gas Light Co.	249	W. Genesee	1	4	Gem	198.00	332.98
Bush & Howard	234	Scott	2	2	Worthington	51.52	430.46
Buffalo Starch Works	320	Court	1	1 1/2	Union	42.00	204.19
Clark Manufacturing Co.	424	Niagara	1	1 1/2	Union	106.50	47.08
Citizens' Gas Light Co.	293	Court	1	4	Union	42.00	364.91
Clinton Brewing Co.	10	W. Bennett	1	1 1/2	Worthington	209.00	71.83
Cornell Lead Works	462	W. Virginia	1	2	Union	41.40	5.05
Co-operative Brewing Co.	160	High	1	3	Gem	63.00	205.01
Cook, E. N. & Co.	481	Spring	1	3	Union	99.00	1,096.49
De Laney Forge & Iron Co.	300	Perry	1	3	Union	106.50	143.78
Driscoll, Mrs.	104	Burton alley	1	1	Union	106.50	30.53
Dold, Jacob	741	William	2	3	Gem	27.00	243.55
				2	Worthington	51.52	

Exstein, Hiram	185 Washington.....	2	Elev. hoists	Howard.....	82.18
Exstein, Hiram	47 Exchange	1	Elev. hoist	Howard	103.64
Farthing, G. & T.	153 Pratt.....	1	4	Union	593.64 9 months..
Frank & Co.	176 L Terrace	1	1	Union	81.82
Buffalo Scale Works	320 Exchange	1	1	Union	8.98 2 months..
Clark, Thomas.....	19 Perry	2	1½	Union	6.19 2 months..
Drullard & Hayes	344 Exchange.....	2	1½	Union	7.21 2 months..
Farrar & Trefus	54 Perry.....	2	1	Gem	7 69 2 months..
Gerber, Charles.....	821 Main	1	2	Worthington	122.57
Goodyear Rubber Co.....	9 W. Seneca.....	1	2	Gem	55.85
Haas, David.....	650 Spring	2	1½	Howard.....	4.62 2 months..
Hamilton, C. J.	103 Erie.....	1	1½	Union	48 21
Hayen, J. F.	222 Main	1	1½	Worthington	298.77
Harvey & Henry	197 Chicago	1	3	Howard.....	714.43
Haberstro, J. L.	11 High	1	4	Union	65.50
Hessee & Co.	247 Ellicott	1	1	Union	11.28 9 months..
Howard Iron Works	285 Chicago	1	2	Worthington	202.47
Holmes, E. & B.	187 Michigan	1	2	Union	84.63
Hubbell Bros.....	60 Scott	1	1	Union	15.50 2 months..
Jost Brewing Co.....	421 Broadway.....	1	3	Gem	63.05 7 months..
Kaltenbach, F. X.	462 Eagle	1	3	Gem	180.67
Kip Hammer Works.....	146 W. Virginia.....	1	1½	Union	3.37 3 months..
Khuck, C.	50 Depot.....	3	2	Gem	564.80
Kuhn, J. F.	648 Broadway.....	1	1½	Worthington	10.48 2 months..
Kreinder, W. & Co.	481 Spring.....	1	2	Union	3.06 2 months..
Lang, G.	400 Best	1	1½	Union	377.36
		1	4	Gem	198.00

METER STATEMENT.—Continued.

Statement Showing Revenue per Meter Measurement for the Twelve Months Ending Jan. 1, 1884.

Consumer.	Location.		No. Meters	Size, Inch.	Kind.	Cost.	Revenue.
	No.	Street.					
Laub & Zeller.....	752	Clinton	1	3	Gem.....	\$ 99.00	\$ 141.85
Lautz & Co.....	R. 881	Main	1	1½	Union.....	42.00	71.42 9 months.
Laverack & Co.....	231	Washington	1	Elev. hoist	Howard		154.11
Lee, Holland & Co.....	62	Wilkeson.....	1	4	Union.....	209.00	352.40
Luippold, J. M.....	301	Emslie	2	1½	Union.....	84.00	94.22
Marcus, S. & Son.....	183	Washington.....	1	Elev. hoist	Howard		78.28
Mason, S. L. & Bro.	210	Scott	1	2	Worthington	51.52	152.22
McGrath & Bisgood	88	Pearl.....	1	Elev. hoist	Howard		58.61
Meyer, Joseph	686	Eagle.....	2	1½	Union.....	42.00	80.62
Mutual Gas Light Co.....	545	Elk	1	2	Union.....	63.00	
Niagara Elevator.....	375	Ohio	2	3	Union.....	106.50	96.00
Oppenheimer & Co.....	204	L. Terrace.....	1	Elev. hoist	Worthington	106.50	145.01
Ovens, R.....	159	Ellicott.....	1	1½	Howard	51.52	54.91
Pratt, Mrs. S. F.....	388	Delaware avenue	1	Elev. hoist	Worthington	41.40	15.82 2 months..
Pratt & Letchworth.....		Tonawanda	1	4	Howard		96.19
Pratt & Letchworth.....	R. 406	Fifth	1	3	Union.....	209.00	250.99
Powell & Plimpton.....	297	Washington ...	1	Elev. hoist	Gem.....	99.00	190.47
Plumb, Burdick & Barnard.	637	Clinton	2	2	Howard		101.75
Ramsdell, Sweet & Co.....	215	Washington	1	2	Crown	75.00	551.22
Roos, George.....	95	Roos alley.....	1	Elev. hoist	Gem.....	49.50	310.35
Rochevot, George.....	1013	Jefferson	2	2	Howard		347.61
Rumsey & Co.....	537	Louisiana.....	1	3	Gem	198.00	219.21
					Gem.....	49.50	
					Union.....	63.00	
					Union	106.50	267.49

THE BUFFALO CITY WATER WORKS.

Schaeffer, A.....	132 Lake View ave..	2	2	Union.....	63.00	85.21
Strauss, M.....	367 Carroll.....	1	1 1/2	Union.....	42.00	88.61
Shepard, S. & Co.....	68 Main.....	1	2	Worthington	51.52	95.26
Shepard, S. & Co.....	191 Clinton.....	1	Elev. hoist	Howard.....	27.00	11.96
Shepard, S. & Co.....	236 Clinton.....	1	1	Union.....	63.00	61.91
Sizer, W. S.....	111 Mill.....	1	2	Union.....	106.50	194.50
Scoville, J. & N. C.....	534 Louisiana.....	1	3	Gem.....	198.00	12.55 5 months.
Schoelkopf Sons.....	42 Hudson.....	1	4	Union.....	100.50	397.35
Schoelkopf & Co.....	103 Mississippi.....	1	3	Worthington	103.04	425.84
Sloan, W. W.....	698 Carroll.....	2	2	Union.....	84.00	106.74
Schuesler, J.....	147 Emslie.....	1	1 1/2	Union.....	42.00	81.04
Schlund & Doll.....	472 Main.....	2	2	Union.....	126.00	48.52
Thompson, T. E.....	29 Tonawanda.....	1	1	Elev. hoist	Howard.....	12.08
Trout, H. G.....	226 Ohio.....	1	3/4	Union.....	19.00	142 25
Thornton & Chester.....	212 Erie.....	1	1 1/2	Union.....	42.00	61.99
Ullman, D.....	66 Broadway.....	1	2	Union.....	63.00	102.24
Schaeffer Bros.....	522 Seventh.....	1	1	Elev. hoist	Howard.....	16.20 2 months.
Uebelboer, J.....	200 Cherry.....	1	1 1/2	Gem.....	42 00	43.72
Vosburgh, Whiting & Co...	304 Main.....	1	1	Union.....	42 00	77.59
Weller, J. J.....	391 Main.....	1	Elev. hoist	Howard.....	.....	53.11
Wesp, Lautz Bros. & Co...	242 Oneida.....	1	1	Howard.....	.....	1,559.83
Weyand, C.....	793 Main.....	2	4	Union.....	209.00	246.35
Weller, J. J.....	292 Elm.....	2	3	Union.....	106.50	79.31
Wheeler, Joel & Co.....	283 Perry.....	2	3	Gem.....	99.00	55.28
White & Craft.....	72 Lake View ave..	1	2	Gem.....	49.50	63.42
White, L. & I. J.....	312 Exchange.....	1	3	Union.....	27.00	84.51
Wuight, A. P.....	563 Main.....	1	2	Worthington	103.04	158.34
Menker, H. A.....	563 Main.....	1	3	Gem.....	99.00	23.89

METER STATEMENT.—Continued.

Statement Showing Revenue per Meter Measurement for the Twelve Months Ending Jan. 1, 1884.

Consumer.	Location.		No. Meters.	Size, Inch.	Kind.	Cost.	Revenue.	
	No.	Street.						
Zeiler, George.....	1147	Main	1	1½	Worthington	\$ 41.40	\$ 10.83	4 months..
Ziegele, A.....		Main	3	}	Gem.....	148.50	442.35	.....
			1		Gem.....	99.00		
Stafford & Co.....		Main	1	Elev. hoist	Howard		83.09	.....
Schleucher & Co.....	649	Spring	1	1½	Union	42.00	1 28	2 months..
American Glucose Co.....	188	Scott	1	4	Union	209.00	23,375.37	.....
			2	10	Gem.....	1,980.00		
American Glucose Co.....	320	Court.....	1	2	Union	63.00	5,501.91	.....
			1	6	Gem.....	450.00		
American Glucose Co.....	12	Mortimer	1	4	Union	209.00	5,053.70	5 months..
			2	6	Gem.....	900.00		
B., N. Y. & P. R. R. Co....		Tank.....	1	6	Gem.....	450.00	656 45	.....
D., L. & W. R. R. Co....		Tanks	2	4	Union	418.00	277.18	.....
L. S. & M. S. R. R. Co....		Tanks	3	4	Gem.....	594.00	3,791.90	.....
N. Y., L. E. & W. R. R. Co.		Tanks, etc	3	4	Gem.....	594.00		
N. Y., L. E. & W. R. R. Co.		Tanks	1	2	Gem.....	49.50	4,046.04	.....
			1	1½	Crown	55.00		
N. Y., L. E. & W. R. R. Co.		Tank	1	1	Crown	30.00	4,046.04	.....
			1	10	Gem.....	990.00		
N. Y., L. E. & W. R. R. Co.		Tanks	1	3	Gem.....	99.00	4,473.09	.....
			3	4	Union	627.00		
N. Y. C. & H. R. R. Co.		Tanks	1	4	Union	209.00	4,473.09	.....
			2	6	Gem.....	900.00		
N. Y. C. & St. L. R. R. Co.		Tank.....	1	4	Union	209.00	66.12	7 months..

ON THE WA

8	1,514.72		1	.....		1
1	639.00		1	.....		1
9	547.20		2	.....		2
3	1,738.35	1.1	1	.....		1
1	357.65		13	.....		13
3	738.15			.....		1
2	559.36		2	.....		2
6	1,309.80		1	.....		1
7	977.69		1	.....		1
0	6,703.18	2.	2	.....		2
1	978.75		6	.....	1	7
5	506.99		2	.....		2
8	264.75		1	.....		1
5	3,521.46			.....		1
2	705.78	1.6	11		11
7	71,745.96		1		1
			101	8	5	131
4	41,499.84	4.4	7	4	14
7	5,112.05	1.1	2	1	3
2	2,620.76	2.2	4	3	7

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DISTRIBUTION

OF THE

WATER DEPARTMENT

FOR THE

YEAR 1883.

FIRE HYDRANTS.

The number of Fire Hydrants placed during the year on new lines of pipe was one hundred and fourteen, of which forty-two were on the High and seventy-two on the Reservoir supply. Making the total number in the city on January 1st, 1884, one thousand four hundred and seven.

LOCATION AND KIND OF HYDRANTS SET IN NEW MAINS, FROM
JANUARY 1, 1883, TO DECEMBER 31, 1883.

Location.	System.	Kind.	Hayes.	Ludlow.	Total.
Ashland avenue, west side, 480 ft south of Bryant.....	H.	2 n. L.	..	1	
Bird avenue, northwest corner of De-witt.....	R.	"	..	1	
Bird avenue, north side, opposite Herkimer	"	"	..	1	
Bird avenue, northwest corner of Grant....	"	"	..	1	
Bryant street, southeast corner of Ashland avenue.....	H.	2 n. H.	1	..	
Bryant street, southeast corner of Howard avenue.....	"	"	1	..	
Burton alley, northwest corner of Boston alley.....	"	2 n. L.	..	1	
Carlton street, north side, 470 ft. east of Jefferson.....	"	2 n. H.	1	..	
Carlton street, north side, 940 ft. east of Jefferson.....	"	"	1	..	
Cayuga street, north side, 700 ft. east of Jefferson.....	"	2 n. L.	..	1	
Chenango street, southeast corner of Massachusetts.....	R.	"	..	1	

Location.	System.	Kind.	Hayes.	Ludlow.	Total.
Chenango street, southeast corner of Ferry.....	R.	2 n. H.	1	..	
Dodge street, south side, 380 ft. east of Michigan.....	H.	2 n. L.	..	1	
Dodge street, southwest cor. of Masten	"	"	..	1	
Elk street, southwest corner of Selkirk	R.	"	..	1	
Elk street, south side, 250 ft. east of Selkirk	"	2 n. H.	1	..	
Elk street, southwest corner of Lee..	"	"	1	..	
Elk street, southwest cor. of Peabody	"	"	1	..	
Elk street, southwest cor. of Maurice	"	2 n. L.	..	1	
Elk street, southwest cor. of Babcock	"	"	..	1	
Ellicott street, southwest corner of Dodge....	H.	"	..	1	
Farmer street, southwest corner of Gurnsey.....	R.	"	..	1	
Ferry street, northwest corner of West avenue.....	"	"	..	1	
Fifteenth Street, southwest corner of Vermont.....	H.	2 n. H.	1	..	
Fillmore avenue, northwest corner of North Division.....	R.	2 n. L.	..	1	
Fillmore avenue, northwest corner of Jerry.....	"	"	..	1	
Fillmore avenue, west side, 485 feet north of William.....	"	"	..	1	
Fillmore avenue, southwest corner of Peckham.....	"	"	..	1	
Fourteenth street, southwest corner of Massachusetts.....	"	"	..	1	
Fox street, east side, 485 ft. south of Genesee	"	2 n. H.	1	..	
Fox street, east side, 970 ft. south of Genesee	"	"	1	..	

THE BUFFALO CITY WATER WORKS.

103

Location.	System.	Kind.	Hayes.	Ludlow.	Total.
Fox street, northeast corner of Sycamore.....	R.	2 n. H.	I	..	
Genesee street, southeast corner of Guilford.....	"	"	I	..	
Genesee street, southeast corner of Reed.....	"	"	I	..	
Genesee street, southeast corner of Strauss.....	"	"	I	..	
Genesee street, southeast corner of Fillmore avenue.....	"	"	I	..	
Genesee street, south side, 425 ft. east of Fillmore avenue.....	"	"	I	..	
Goodrich street, northeast corner of Ellicott.....	H.	"	I	..	
Goodrich street, northwest corner of Oak.....	"	"	I	..	
Goodrich street, northwest corner of Elm.....	"	"	I	..	
Grey street, east side, 440 ft. north of Broadway.....	R.	2 n. L.	..	I	
Grey street, east side, 880 ft. north of Broadway.....	"	"	..	I	
Hamilton street, northwest corner of Thompson.....	"	"	..	I	
Herman street, west side, 455 feet south of Genesee.....	"	"	..	I	
Herman street, west side, 910 feet south of Genesee.....	"	"	..	I	
Herman street, northwest corner of Sycamore.....	"	"	..	I	
Howard avenue, west side, 475 feet south of Bryant.....	H.	2 n. H.	I	..	
Howard avenue, west side, 950 feet south of Bryant.....	"	"	I	..	

Location.	System.	Kind.	Hayes.	Ludlow.	Total.
Howard avenue, northwest corner of Summer.....	H.	2 n. H.	1	..	..
Howard street, southeast corner of Monroe.....	"	"	1	..	..
Howard street, southwest corner of Montgomery.....	R.	2 n. L.	..	1	1
Howard street, southwest corner of Raze.....	"	"	..	1	1
John street, east side, 30 ft. south of Bemis alley.....	H.	"	..	1	1
Johnson street, west side, 470 feet south of Genesee.....	R.	2 n. H.	1	..	..
Johnson street, west side, 940 feet south of Genesee.....	"	"	1	..	..
Krettner street, east side, 500 ft. south of Peckham.....	"	2 n. L.	..	1	1
Lemon street, southwest cor. of North Locust street, southwest cor. of North Lord street, northwest cor. of Eagle.	H.	2 n. H.	1	..	..
Main street, southeast corner of Jefferson.....	"	"	1	..	..
Main street, southeast corner of Humboldt parkway.....	R.	"	1	..	..
Main street, northeast corner of Forest avenue.....	H.	2 n. L.	..	1	1
Main street, southeast cor. of Leroy avenue	"	2 n. H.	1	..	..
Main street, northeast cor. of Jewett avenue	"	2 n. L.	..	1	1
Main street, southeast corner of Amherst.....	"	"	..	1	1
Metcalf street, northwest corner of Howard.....	"	2 n. H.	1	..	..
	R.	2 n. L.	..	1	1

THE BUFFALO CITY WATER WORKS.

105

Location.	System.	Kind.	Hayes.	Ludlow.	Total.
Michigan street, northwest corner of Riley.....	H.	2 n. L.	..	I	
Michigan street, west side, opposite Laurel	"	"	..	I	
Michigan street, west side, 480 feet north of Glenwood avenue.....	"	"	..	I	
Monroe street, west side, 300 ft. north of Clinton.....	R.	"	..	I	
Monroe street, west side, 290 ft. north of Howard.....	"	"	..	I	
Monroe street, west side, 500 ft. north of William.....	"	"	..	I	
North street, southwest corner of Elliott.....	H.	"	..	I	
North street, southeast cor. of Elm..	"	"	..	I	
Oak street, northeast cor. of North..	"	2 n. H.	I	..	
Peach street, southwest cor. of Best..	"	2 n. L.	..	I	
Peckham street, northwest corner of Coit.....	R.	"	..	I	
Peckham street, northwest corner of Detroit.....	"	"	..	I	
Peckham street, northwest corner of Townsend.....	"	"	..	I	
Peckham street, northwest corner of Wilson.....	"	"	..	I	
Ralph alley, southeast cor. of Virginia	H.	"	..	I	
Rhode Island street, southwest corner of Fourteenth.....	R.	"	..	I	
Rhode Island street, southeast corner of Fifteenth.....	"	"	..	I	
Rhode Island street, southwest corner of Bremen.....	"	"	..	I	
Rhode Island street, southeast corner of Utica.....	"	"	..	I	

Location.	System.	Kind.	Hayes.	Ludlow.	Total.
• Rhode Island street, southwest corner of Eighteenth.....	R.	2 n. L.	..	I	
Rhode Island street, southeast corner of Chenango.....	"	"	..	I	
Selkirk street, southwest cor. of Perry	"	"	..	I	
Sherman street, east side, 465 feet south of Genesee.....	"	"	..	I	
Sherman street, east side, 930 feet south of Genesee.....	"	"	..	I	
Sherman street, northeast corner of Sycamore.....	"	"	..	I	
Shumway street, west side, 500 feet north of William.....	"	"	..	I	
Smith street, southwest cor. of Perry	"	"	..	I	
Smith street, southwest cor. of Fulton	"	"	..	I	
Smith street, northeast cor. of Clifford	"	2 n. H.	I	..	
Stanton street, west side, 500 feet north of William.....	"	2 n. L.	..	I	
Stanton street, northeast corner of Lovejoy.....	"	"	..	I	
Summer street, southwest corner of Main.....	H.	"	..	I	
Summer street, northeast corner of Ashland avenue.....	"	2 n. H.	I	..	
Tousey street, northwest corner of Champlin.....	R.	2 n. L.	..	I	
Utica street, southwest corner of Michigan.....	H.	2 n. H.	I	..	
Utica street, southwest corner of Masten.....	"	"	I	..	
Utica street, southwest cor. of Purdy	"	2 n. L.	..	I	
Utica street, southwest corner of Jefferson.....	"	"	..	I	
Waverly street, notheast cor. of Ferry	"	"	..	I	

THE BUFFALO CITY WATER WORKS.

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Location.	System.	Kind.	Hayes.	Ludlow.	Total.
Waverly street, southeast corner of R. R. avenue.....	H.	2 n. L.	
West avenue, northwest cor. of Albany	R.	2 n. H.	1	..	
William street, north side, 1,250 feet east of Babcock.....	"	2 n. L.	..	1	
William street, northwest corner of Central avenue.....	"	2 n. H.	1	..	
Williamsville road, northeast corner of William.....	"	2 n. L.	..	1	
Williamsville road, northeast corner of Ludington.....	"	"	..	1	
Williamsville road, southeast corner of Lovejoy.....	"	"	..	1	
Williamsville road, northwest corner of Broadway.....	"	"	..	1	
Williamsville road, east side, 1,275 feet north of Broadway.....	"	"	..	1	
<hr/>					
Total Hydrants set in 1883.....			37	77	114
On High Service.....			19	23	42
On Reservoir Service.....			18	54	72
<hr/>					
Total, as above.....			37	77	114
Set in previous years.....	1,299				
Abandoned in 1883.....	6				1,293
<hr/>					
Total Hydrants in City, December 31st, 1883.....					1,407

H. stands for Holly or High Service.

R. stands for Reservoir Supply.

2 n. H. stands for two nozzle Hayes Hydrant.

2 n. L. stands for two nozzle Ludlow Hydrant.

NEW HYDRANTS PUT IN TO REPLACE OLD ONES.

Location.	System.	Kind.	Hayes.	Ludlow.
Adams street, east side, opp. Brown.	R.	2 n. L.	..	1 S.
Allen street, northwest cor. of North Pearl.....	H.	2 n. H.	1	.. S.
Broadway, northeast corner of Ash..	R.	"	1	.. S.
Burton alley, northwest cor. of Oak..	H.	2 n. L.	..	1 S.
Carolina street, northwest corner of Fourth	R.	"	..	1 S.
Carroll street, northeast cor. of Wells	"	2 n. H.	1	..
Carroll street, north side, 580 ft. east of Chicago.....	"	"	1	..
Cherry street, south side, opp. Peach.	"	2 n. L.	..	1 S.
Chippewa street, southeast corner of Washington.....	H.	2 n. H.	1	.. S.
Chippewa street, northwest corner of Ellicott.....	R.	"	1	.. S.
Clinton street, northeast corner of Ellicott.....	"	2 n. L.	..	1 S.
Clinton street, southwest cor. of Oak.	"	"	..	1 S.
Clinton street, southwest corner of Michigan	"	"	..	1 S.
Clinton street, north side, 400 feet east of Michigan.....	"	"	..	1 S.
Clinton street, southwest corner of Union.....	"	"	..	1 S.
Columbia street, southwest corner of Ohio.....	"	2 n. H.	1	..
Court street, northwest cor. of Staats.	"	"	1	..
Delaware avenue, southeast corner of Barker	H.	"	1	.. S.
Delaware avenue, southeast corner of Utica	"	2 n. L.	..	1

Location.	System.	Kind.	Hayes.	Ludlow.
Depot street, west side, 500 feet south of William.....	R.	2 n. H.	1	..
Eagle street, northeast corner of Oak	"	2 n. L.	..	1 S.
Eagle street, southeast corner of Elm	"	"	..	1 S.
Eagle street, northwest cor. of Watson	"	2 n. H.	1	..
Efner street, northwest corner of Virginia	"	2 n. L.	..	1 S.
Elk street, southeast corner of Michigan.....	"	2 n. H.	1	.. S.
Elk street, southwest corner of Louisiana.....	"	"	1	.. S.
Elk street, south side, opp. Hayward.	"	"	1	.. S.
Elk street, southwest corner of Van Rensselaer.....	"	"	1	..
Ellicott street, southeast corner of Broadway.....	"	2 n. L.	..	1 S.
Ellicott street, west side, 300 feet north of Carlton.....	H.	"	..	1 S.
Elm street, west side, 325 feet north of Tupper.....	"	2 n. H.	1	.. S.
Elm street, northeast cor. of Carlton.	"	2 n. L.	..	1 S.
Emslie street, northeast corner of Seymour.....	R.	"	..	1 S.
Emslie street, northeast corner of South Division.....	"	"	..	1 S.
Emslie street, northeast corner of North Division.....	"	2 n. H.	1	..
Exchange street, southwest corner of Beak.....	"	2 n. L.	..	1 S.
Exchange street, northwest corner of Michigan.....	"	2 n. H.	1	.. S.
Exchange street, south side, 300 feet east of Chicago.....	"	2 n. L.	1	.. S.

Location.	System.	Kind.	Hayes.	Ludlow.
Exchange street, south side, 342 feet east of Louisiana.....	R. 2 n. L.	..	1	S.
Exchange street, south side, 687 feet east of Louisiana.....	" "	..	1	S.
Exchange street, south side, 290 feet east of Alabama.....	" "	..	1	S.
Exchange street, northeast corner of Van Rensselaer.....	" "	..	1	S.
Fifth street, northwest corner of Root	" "	..	1	S.
Fifth street, southwest corner of Pennsylvania.....	" "	..	1	S.
Folsom street, south side, 475 feet east of Michigan.....	" 1 n. H.	1	..	
Folsom street, southeast corner of Chicago.....	" 2 n. L.	..	1	S.
Fourteenth street, west side, 310 feet north of York.....	H. "	..	1	S.
Franklin street, southeast corner of Seneca	" 2 n. H.	1	..	
Franklin street, west side, 33 feet south of Swan.....	" 2 n. L.	..	1	S.
Franklin street, southwest corner of Court	" "	..	1	S.
Franklin street, east side, 30 feet south of Mohawk.....	" "	..	1	S.
Franklin street, east side, 380 feet north of Chippewa.....	" "	..	1	S.
Franklin street, east side, 760 feet north of Chippewa.....	" "	..	1	S.
Franklin street, northwest corner of Allen.....	" 2 n. H.	1	..	S.
Franklin street, east side, 325 feet north of Allen.....	" "	1	..	S.

THE BUFFALO CITY WATER WORKS.

III

Location.	System.	Kind.	Hayes.	Ludlow.
Front avenue, east side, 270 feet north of Porter avenue.....	R.	2 n. L.	..	I S.
Front avenue, east side, 310 feet north of Connecticut.....	"	"	..	I S.
Genesee street, northwest corner of Ellicott.....	H.	2 n. H.	I	.. S.
Genesee street, southeast corner of Oak.....	R.	"	I	.. S.
Genesee street, northwest corner of Elm.....	"	"	I	.. S.
Genesee street, southeast corner of Ash.....	"	"	I	.. S.
Genesee street, northwest corner of Spruce	"	"	I	.. S.
Genesee street, southwest corner of Walnut.....	"	"	I	.. S.
Genesee street, northwest corner of Hickory....	"	"	I	.. S.
Genesee street, southeast corner of Pratt.....	"	"	I	.. S.
Genesee street, southwest corner of Mortimer.....	"	"	I	.. S.
Genesee street, southeast corner of Kane.....	"	"	I	.. S.
Genesee street, southwest corner of Jefferson.....	"	"	I	.. S.
Hamilton street, northeast corner of East....	"	2 n. L.	..	I S.
Heacock street, northeast corner of Porter.....	"	2 n. H.	I	..
High street, southeast corner of Main	H.	2 n. L.	..	I S.
High street, southeast corner of Washington.....	"	"	..	I S.

Location.	System.	Kind.	Hayes.	Ludlow.
High street, southwest corner of Elliott.....	H.	2 n. L.	..	1 S.
Hudson street, northeast corner of Prospect avenue.....	"	"	..	1 S.
Irving place, northeast cor. of Allen.	H.	"	..	1 S.
Irving place, southeast cor. of North.	"	"	..	1 S.
Jefferson street, southwest corner of Peckham.....	R.	2 n. H.	1	.. S.
Johnson place, south side, 500 feet west of Delaware avenue.....	"	"	1	.. S.
Louisiana street, southeast corner of Ohio.....	"	2 n. L.	..	1 S.
Louisiana street, northeast corner of South	"	1 n. H.	1	.. S.
Louisiana street, northeast corner of Miami.....	"	2 n. L.	..	1 S.
Mackinaw street, southwest corner of Vandalia.....	"	"	..	1 S.
Main street, southeast cor. of Perry..	"	"	..	1 S.
Main street, northwest corner of Hanover.....	"	"	..	1 S.
Main street, northwest corner Lloyd..	"	"	..	1 S.
Main street, northeast corner of Quay	"	"	..	1 S.
Main street, northeast cor. of Seneca.	"	"	..	1 S.
Main street, northeast cor. of Swan..	"	"	..	1 S.
Main street, southeast corner of Clinton.....	H.	2 n. H.	1	..
Main street, northwest corner of Chipewa.....	"	"	1	..
Main street, southeast cor. of Tupper	"	"	1	..
Main street, northeast corner of Delavan avenue.....	"	2 n. L.	..	1 S.

Location.	System.	Kind.	Hayes.	Ludlow.
Maryland street, southwest corner of Sixth.....	R.	2 n. H.	1	.. S.
Michigan street, southeast corner of Folsom.....	"	"	1	.. S.
Michigan street, southwest corner of North Division.....	"	2 n. L.	..	1 S .
Michigan street, southeast corner of Broadway.....	"	"	..	1 S.
Michigan street, west side, 330 feet north of Tupper.....	"	2 n. H.	1	..
Niagara street, northeast corner of Delaware avenue.....	"	2 n. L.	..	1 S.
Niagara street, southwest corner of Mohawk.....	"	2 n. H.	1	.. S.
Niagara street, northwest corner of Georgia.....	"	2 n. L.	..	1 S.
Niagara street, southwest corner of Maryland.....	"	2 n. H.	1	.. S.
Niagara street, east side, 310 feet north of Maryland.....	"	2 n. L.	..	1 S.
Niagara street, northwest corner of Hudson.....	"	2 n. H.	1	.. S.
Niagara street, southwest corner of Pennsylvania.....	"	"	1	.. S.
Niagara street, northwest corner of Jersey.....	"	2 n. L.	..	1 S.
Niagara street, southwest corner of Rhode Island.....	"	"	..	1 S.
Niagara street, southwest corner of Front avenue.....	"	"	..	1 S.
North Pearl street, northwest corner of Virginia.....	H.	2 n. H.	1	.. S.

Location.	System.	Kind.	Hayes.	Ludlow.
Norton street, northwest corner of Water	R.	2 n. L.	..	1 S.
Oak street, northeast corner of Syca- more.....	"	"	..	1 S.
Oak street, east side, 325 feet north of Sycamore	"	"	..	1 S.
Ohio street, north side, 250 feet east of Chicago.....	"	2 n. H.	1	..
Ohio street, southeast corner of Mackinaw.....	"	"	1	.. S.
Ohio street, east side, 200 feet south of Wabash.....	"	2 n. L.	..	1 S.
Peach street, southwest corner of Virginia	H.	"	..	1 S.
Peach street, west side, 300 feet north of Virginia.....	"	"	..	1 S.
Pearl street, southeast corner of Lower Terrace.....	R.	"	..	1 S.
Pearl street, northwest corner of Upper Terrace.....	"	2 n. H.	1	.. S.
Pearl street, west side, 160 feet north of Terrace.....	H.	1 n. H.	1	..
Pearl street, southeast corner of Church.....	"	2 n. H.	1	.. S.
Pearl street, northeast corner of Court.....	"	"	1	.. S.
Pearl street, east side, 250 feet south of Virginia.....	"	"	1	..
Peckham street, northeast corner of Shumway.....	R.	2 n. L.	..	1 S.
Pine street, east side, opposite Cy- press.....	"	2 n. H.	1	.. S.

THE BUFFALO CITY WATER WORKS.

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Location.	System.	Kind.	Hayes.	Ludlow.
Porter avenue, southwest corner of Sixth.....	R.	2 n. L.	..	1 S.
Prospect avenue, southwest corner of Georgia.....	"	"	..	1 S.
Prospect avenue, east side, 310 feet north of Carolina.....	"	"	..	1 S.
Prospect avenue, west side, 310 feet north of Rhode Island.....	"	"	..	1 S.
Prospect avenue, west side, 180 feet north of Hampshire.....	"	"	..	1 S.
Seneca street, northeast corner of Washington.....	H.	2 n. H.	1	..
Seneca street, northeast corner of Ellicott.....	R.	2 n. L.	..	1 S.
Seneca street, northeast corner of Berrick alley.....	"	"	..	1 S.
Seneca street, southwest corner of Michigan.....	"	"	..	1
Seneca street, south side, opposite Dougherty alley.....	"	"	..	1 S.
Seneca street, north side, 300 feet east of Michigan.....	"	"	..	1 S.
Seneca street, northwest corner of Chicago.....	"	2 n. H.	1	.. S.
Seneca street, south side, 290 feet east of Chicago.....	"	2 n. L.	..	1 S.
Seneca street, south side, 580 feet east of Chicago.....	"	"	..	1 S.
Seneca street, southwest corner of Louisiana.....	"	"	..	1 S.
Seneca street, north side, 320 feet east of Louisiana.....	"	"	..	1 S.
Seneca street, south side, 640 feet east of Louisiana.....	"	"	..	1

Location.	System.	Kind.	Hayes.	Ludlow.
Seneca street, south side, 300 feet east of Jefferson.....	R.	2 n. L.	..	1 S.
Seneca street, north side, opposite Alabama.....	"	"	..	1 S.
Seneca street, northwest corner of Hamburg.....	"	"	..	1 S.
Seneca street, southwest corner of Jefferson.....	"	"	..	1 S.
Seneca street, northwest corner of Swan.....	"	"	..	1 S.
Seneca street, southwest corner of Heacock.....	"	"	..	1 S.
Seventh street, northwest corner of Wilkeson.....	"	"	..	1 S.
Seventh street, east side, 310 feet north of Wilkeson.....	"	"	..	1 S.
Seventh street, east side, 310 feet north of Georgia.....	"	"	...	1 S.
Seventh street, east side, 310 feet north of Carolina.....	"	"	..	1 S.
Seventh street, southwest corner of Virginia.....	"	"	..	1 S.
Seventh street, west side, 310 feet north of Virginia.....	"	"	..	1 S.
Seventh street, east side, 310 feet north of Vermont.....	"	2 n. H.	1	.. S.
South Division, southeast corner of Pine.....	"	"	1	..
Spring street, southwest corner of Folsom.....	"	1 n. H.	1	..
Swan street, northwest corner of Ellicott.....	"	2 n. L.	..	1 S.
Swan street, south side, opposite Oak.	"	"	..	1 S.

THE BUFFALO CITY WATER WORKS.

117

Location.	System.	Kind.	Hayes.	Ludlow.
Swan street, northwest corner of Elm.....	R.	2 n. L.	..	1 S.
Swan street, southwest corner of Michigan.....	"	2 n. H.	1	..
Swan street, north side, 250 feet east of Michigan.....	"	2 n. L.	..	1 S.
Swan street, south side, opp. Chestnut	"	"	..	1 S.
Swan street, south side, 200 feet west of Chicago.....	"	"	..	1 S.
Swan street, north side, opposite Pine	"	2 n. H.	1	.. S.
Swan street, north side, opposite South Cedar.....	"	"	1	.. S.
Sycamore street, northeast corner of Elm.....	"	2 n. L.	..	1 S.
Sycamore street, northeast corner of Walnut.....	"	2 n. H.	1	.. S.
Terrace, upper, north side, 150 feet east of Pearl.....	"	"	1	.. S.
Tupper street, southeast corner of Virginia	"	2 n. L.	..	1 S.
Utica street, south side, 250 feet east of Delaware avenue.....	H.	"	..	1 S.
Utica street, northeast corner of Oakland avenue.....	"	"	..	1 S.
Utica street, northeast corner of Elmwood avenue.....	"	"	..	1 S.
Van Rensselaer street, west side, 250 feet north of Porter.....	R.	2 n. H.	1	..
Virginia street, southwest corner of West avenue.....	"	"	1	.. S.
Washington street, southeast corner of Ohio.....	"	2 n. L.	..	1 S.

Location.	System.	Kind.	Hayes.	Ludlow.
Washington street, west side, 250 feet north of Ohio.....	R.	2 n. H.	1	.. S.
Washington street, northwest corner of Perry.....	R.	2 n. L.	..	1 S.
Washington street, northwest corner of Scott.....	H.	"	..	1 S.
Washington street, northeast corner of South Division.....	"	2 n. H.	1	..
Washington street, northwest corner of Eagle.....	R.	"	1	..
Washington street, northeast corner of Lafayette.....	"	"	1	.. S.
Washington street, east side, 350 feet north of Tupper.....	"	1 n. H.	1	..
West avenue, east side, 310 feet north of Maryland.....	R.	2 n. L.	..	1 S.
West avenue, northwest corner of Hudson.....	"	"	..	1 S.
West avenue, east side, 300 feet north of Jersey.....	H.	2 n. H.	1	.. S.
West avenue, southeast corner of Porter avenue.....	"	2 n. L.	..	1 S.
West avenue, southwest corner of Vermont.....	"	"	..	1 S.
Red Jacket street, southwest corner of Perry.....	R.	2 n. H.	1	..
Whitney place, northeast corner of Georgia.....	"	2 n. L.	..	1 S.
Whitney place, southeast corner of Maryland.....	"	"	..	1 S.
Whitney place, east side, 310 feet north of Maryland.....	"	"	..	1 S.
William street, southwest corner of Hickory.....	"	"	..	1 S.

Location.	System.	Kind.	Hayes.	Ludlow.
William street, southeast corner of Detroit.....	R.	2 n. H.	1	..
William street, south side, 500 ft. east of Detroit.....	"	"	1	..
Total.....			77	117 194

H. stands for High Service or Holly Supply.

R. stands for Reservoir Supply.

1 n. H. stands for one nozzle Hayes..... 5

2 n. H. stands for two nozzle Hayes..... 72

2 n. L. stands for two nozzle Ludlow..... 117

S. stands for Sewered..... 160

LIST OF OLD HYDRANTS SEWERED.

Location.	System.	Number.
Carolina street, southwest corner of Seventh..	R.	1
Chippewa street, southeast corner of Franklin.	"	1
Church street, northeast corner of Franklin...	"	1
Clinton street, northeast corner of Elm.....	"	1
Commercial street, northeast corner of Pearl..	"	1
Commercial street, southeast corner of Terrace	"	1
Delaware avenue, northeast corner of Mohawk.	"	1
Delaware avenue, southwest corner of Huron..	"	1
Delaware avenue, northeast corner of Chippewa	"	1
Delaware place, north side, 440 feet west of Delaware avenue.....	H.	1
Eagle street, southwest corner of Franklin....	R.	1
Edward street, northwest corner of Delaware avenue.....	H.	1
Erie street, northwest corner of Terrace.....	R.	1
Franklin street, northeast corner of Terrace...	"	1
Genesee street, northeast corner of Morgan....	"	1

Location.	System.	Number.
Genesee street, north side, 170 feet east of Delaware avenue	R.	I
Georgia street, northeast corner of Sixth.....	"	I
Georgia street, southwest corner of Seventh...	"	I
Hollister street, northwest corner of Mortimer.	"	I
Huron street, southeast corner of Franklin....	"	I
Irving place, west side, 475 feet north of Allen	H.	I
Main street, southeast corner of Exchange....	R.	I
Main street, west side, 220 feet north of Exchange.....	"	I
Main street, southwest corner of Seneca.....	"	I
Main street, northeast corner of North Division	H.	I
Main street, southwest corner of Eagle.....	"	I
Main street, northeast corner of Mohawk.....	"	I
Main street, east side, 380 feet north of Chippewa.....	"	I
Main street, west side, 760 feet north of Chippewa.....	"	I
Michigan street, southwest corner of Carroll...	R.	I
Mohawk street, south side, 120 feet east of Morgan	"	I
Mohawk street, northwest corner of Ellicott...	"	I
Niagara street, northeast corner of Franklin...	"	I
Niagara street, east side, 310 feet north of Hudson.....	"	I
Niagara street, southwest cor. of Porter avenue	"	I
Niagara street, southwest corner of Connecticut	H.	I
Niagara street, west side, 310 feet north of Connecticut.....	"	I
Niagara street, northwest corner of Massachusetts.....	"	I
North street, south side, opp. Linwood avenue	"	I
North street, south side, 250 feet east of Delaware avenue.....	"	I

THE BUFFALO CITY WATER WORKS.

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Location.	System.	Number.
North street, southeast corner of Fremont place	H.	I
North street, southeast corner of Mariner.....	"	I
Park street, northeast corner of Allen.....	"	I
Park street, east side, 475 feet north of Allen..	"	I
Park street, southeast corner of North.....	"	I
Pearl street, northwest corner of Seneca.....	"	I
Pearl street, east side, 200 feet north of Seneca	"	I
Pearl street, west side, 20 feet north of Swan..	"	I
Pearl street, southwest corner of Niagara.....	"	I
Pearl street, northeast corner of Niagara.....	"	I
Pearl street, west side, 100 feet north of Eagle.	"	I
Pearl street, northwest corner of Mohawk.....	"	I
Pearl street, southeast corner of Huron.....	"	I
Pearl street, southwest corner of Chippewa....	"	I
Pearl street, east side, 380 feet north of Chippewa.....	"	I
Pearl street, west side, 760 feet north of Chippewa.....	"	I
Pearl street, southeast corner of Tupper.....	"	I
Prospect avenue, northeast corner of Huron...	R.	I
Seneca street, south side, opposite Centre.....	"	I
Tupper street, southwest corner of Franklin...	"	I
Washington street, southeast corner of Perry..	H.	I
Washington street, northeast corner of Scott...	"	I
Washington street, southeast corner of Green..	"	I
Washington street, west side, opposite Green...	R.	I
Washington street, southwest cor. of Exchange..	H.	I
Washington street, northwest cor. of Exchange .	R.	I
Washington street, southeast corner of Carroll..	"	I
Washington street, southwest corner of Seneca..	"	I
Washington street, southeast corner of Orlando alley.....	"	I
Washington street, southwest corner of Swan...	"	I

Location.	System.	Number.
Washington street, northeast corner of Swan...	H.	I
Washington street, southeast corner of South Division.....	R.	I
Washington street, southwest corner of North Division.....	"	I
Washington street, northeast corner of North Division.....	H.	I
Washington street, southeast corner of Eagle..	"	I
Washington street, southeast corner of Clinton..	"	I
Washington street, southwest corner of Clinton..	R.	I
Washington street, northwest cor. of Lafayette..	H.	I
Washington street, southeast cor. of Mohawk..	"	I
Washington street, northwest cor. of Mohawk..	R.	I
Washington street, southeast cor. of Genesee...	"	I
Washington street, northwest cor. of Genesee..	H.	I
Washington street, southwest cor. of Chippewa..	"	I
Washington street, west side, 370 feet north of Chippewa.....	"	I
Washington street, west side, 740 feet north of Chippewa.....	"	I
Washington street, southeast corner of Tupper..	R.	I
Washington street, southwest corner of Tupper..	H.	I
Washington street, northeast corner of Goodell..	"	I
Washington street, northeast corner of Burton alley.....	"	I
Washington street, southeast corner of Virginia..	"	I
Washington street, west side, 300 feet north of Virginia.....	"	I
Washington street, northeast corner of Carlton...	"	I
Washington street, east side, 300 feet north of Carlton.....	"	I

THE BUFFALO CITY WATER WORKS.

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Location.	System.	Number.
Whitney place, west side, 310 feet north of Carolina.....	R.	1
Whitney place, northeast corner of Virginia....	"	1
Whitney place, east side, 310 feet north of Virginia.....	"	1
Total.....		<hr/> 96

HYDRANTS ABANDONED.

Location.	System.	Number.
Exchange, north side, 550 feet east of Wash- ington.....	R.	1
Exchange, southwest corner of Alabama	"	1
Main, west side, opposite Ohio.....	"	1
Main, southwest corner of Erie.....	"	1
Main, east side, opposite Court.....	"	1
Ohio, south side, 300 feet east of Michigan....	"	1
Total.....		<hr/> 6

FREE HYDRANTS.

Location.	System.	Number.
Chicago, northwest corner of Mackinaw	R.	1
Chicago, southeast corner of Elk.....	"	1
Chicago, southeast corner of Fulton.....	"	1
Elk, northeast corner of Columbia	"	1
Elk, southeast corner of Moore.....	"	1
Elk, southeast corner of Hamburg.....	"	1
Exchange, north side, between Jefferson and Hamburgh	"	1
Exchange, northwest corner of Heacock.....	"	1
Fifth, northwest corner of Georgia.....	"	1
Fourth, northeast corner of Carolina.....	"	1

Location.	System.	Number.
Genesee, southeast corner of Spruce:.....	R.	I
Genesee, southwest corner of Sherman.....	"	I
Genesee, northwest corner of Fox.....	"	I
Louisiana, east side, between Ohio and South. .	"	I
Louisiana, northeast corner of Sandusky.....	"	I
Mackinaw, southeast corner of Tennessee....	"	I
Mackinaw, southwest corner of Vandalia.....	"	I
Peckham, southwest corner of Watson.....	"	I
Perry, southwest corner of Illinois	"	I
Perry, southeast corner of Hamburg	"	I
Perry, southwest corner of Hayward.....	"	I
Scott, southwest corner of Illinois.....	"	I
Selkirk, east side, between Exchange and Perry	"	I
Sycamore, northwest corner of Spring.....	"	I
William, northeast corner of Cedar.....	"	I
William, southeast corner of Smith.....	"	I
Total		<hr/> 26

DRINKING FOUNTAINS.

Location.	System.	Number.
Main, northwest corner of Seneca.....		I
Total.....		<hr/> I

HORSE FOUNTAINS.

Location.	System.	Number.
Broadway, southwest corner of Milnor.....	R.	I
Genesee, northeast corner of Ellicott.....		I
Niagara, west side, between Eagle and Franklin	R.	I
Niagara, northeast corner of Prospect avenue.	"	I
Niagara, northeast corner of Austin (on in winter.....	"	I
Total		<hr/> 5

SERVICES.

Total number of Services in the City January 1, 1884, sixteen thousand and twenty-nine, an increase of two thousand six hundred and fifty over previous year.

CORPORATION COCKS.

Statement of Corporation Cocks on hand, received and inserted from January 1, 1883, to January 1, 1884.

	$\frac{1}{2}$ Inch.	$\frac{3}{8}$ Inch.	$\frac{3}{4}$ Inch.	1 Inch.
On hand January 1, 1883.....	127	80	32	15
Received during 1883.....	2,614	47	0	10
	<hr/>	<hr/>	<hr/>	<hr/>
Total	2,741	127	32	25
Inserted during 1883.....	2,621	29	37	
On hand January 1, 1884.....	632	83	7	26
Number paid for by applicants.....	2,603	26	37	

CLASSIFICATION OF WATER SUPPLY.

Armories.....	1
Arsenals	1
Asylums.....	13
Bakeries	79
Banks	19
Barber Shops.....	157
Bath Tubs (cold).....	367
Bath Tubs (hot and cold).....	2,743
Boarding Houses.....	152
Breweries.....	24
Canal Stables.....	7
Chemical Houses (Fire Department)	5

Churches	38
City and County Hall	1
Confectioneries	72
Custom Houses	1
Distilleries	6
Drinking Fountains	3
Drug Stores	67
Dwellings	10,730
Dyeing Establishments	9
Elevators	5
Engraving Establishments	21
Erie County Prison Buildings	2
Families	16,848
Foundries	28
Gas Works	3
Grape Sugar Works	3
Greenhouses	29
Hook and Ladder Truck Houses (Fire Department)	3
Hose Houses (Fire Department)	2
Horse Hydrants	5
Horseshoeing Establishments	26
Hotels	37
Hospitals	6
Laundries	36
Lead Works	1
Liquor Stores	60
Lithographers	4
Livery Stables	43
Manufactories (with engines)	337
Manufactories (without engines)	215
Malt Houses	27
Meat Stores	274
Motors, Beer	146
Motors, Church	12

THE BUFFALO CITY WATER WORKS.**127**

Motors, School.....	1
Motors, Store	1
Motors, Milk Can	3
Offices.....	527
Oil Refineries	5
Planing Mills.....	20
Photographing Establishments	29
Police Stations	9
Post Office	1
Potteries	5
Printing Offices.....	40
Public Markets	3
Public Schools.....	41
Public Parks.....	5
Railway Depots.....	4
Rectifying Establishments.....	8
Restaurants.....	18
Saloons	927
Slaughter Houses	58
Stables (private)	1,457
Starch Factories	4
Steam Fire Engine Houses.....	22
Street Washers and Sprinklers.....	2,480
Tanneries	15
Theatres	5
Urinals	601
Water Closets.....	6,109
Premises having supplies on	14,127
Premises having supplies off	1,902
	<hr/>
Total supplies, January 1, 1884.....	16,029
Total supplies, January 1, 1883	13,379
	<hr/>
Increase for 1883.....	2,650

PUMPING
DEPARTMENT.

1883.

THE BUFFALO CITY WATER WORKS.

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1883.	Running Time of Each Engine in Hours.			Total Hours.	Total Days.	Tons of Coal Consumed						Total Tons of Coal Consumed.	Gallons of Water Raised Monthly.	Gallons of Water Raised Daily.	Gallons of Water Raised with 1 lb. of Coal	Feet Average Daily Height Water in Reservoir	Duty of Engines Nos. 1, 2 and 3		
	No. 1.	No. 2.	No. 3.			Total.	Pumping.			Housing Coal.	Heating.							Upper Engine House.	Lower Engine House.
							Monthly.	Daily.	Housing Coal.										
January.....	550	617	463	1,630	67	22	717.7	23.15	5	80	802.7	809,916,900	26,126,351	564	20	2	45,120,000		
February.....	579	672	672	1,923	80	3	801.4	28.62	4	.....	805.4	777,864,000	27,780,857	600	20	3	48,000,000	
March.....	735	741	59	1,535	63	23	734.4	23.69	5	130	869.4	830,335,000	26,785,000	563	20	..	45,033,600		
April.....	578	626	72	1,276	53	4	576.8	19.22	2	118	696.8	672,954,800	22,431,826	583	20	..	46,636,800		
May.....	579	501	243	1,323	55	3	550.2	17.74	13	2	676.2	671,987,400	21,677,012	588	20	..	47,040,000		
June.....	382	335	509	1,226	51	2	540.9	18.03	13	1	687.9	678,508,400	22,616,946	626	20	..	50,073,600		
July.....	313	219	577	1,109	46	5	529.6	17.08	..	141	670.6	666,538,100	21,565,745	633	20	..	50,640,000		
August.....	383	356	385	1,124	46	20	555.9	17.93	15	..	711.9	704,243,000	22,717,516	656	18	4	52,473,600		
September.....	305	387	515	1,207	50	7	632.2	21.07	8	81	721.2	674,336,500	22,477,883	630	19	..	50,400,000		
October.....	222	530	744	1,496	62	8	752.1	24.26	8	..	760.1	696,657,500	22,472,822	627	20	..	50,160,000		
November.....	202	507	720	1,429	59	13	683	22.76	15	..	698	657,803,500	21,926,783	603	20	..	48,240,000		
December.....	520	180	743	1,443	60	3	624.7	20.15	6	81	711.7	725,300,100	23,396,777	615	20	..	49,200,000		
Total.....	5,348	5,671	5,702	16,721	696	17	7,698.9	78.19	1,016	8,811.9	8,568,445,200	23,475,192	19	10	..	48,584,800			
Total average.....	..	..	..	..	..	..	..	21.09	..	..	..	..	..	..	..	..	..
Total average {	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Last report ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

130 gallons per capita; 180,000 population.

FIFTEENTH ANNUAL REPORT OF
PUMPING DEPARTMENT.

PUMPING ENGINES AND THEIR CAPACITY PER 24 HOURS.

I. Lower House.

Engine No. 1, Worthington.....	10,000,000	gallons.
“ “ 2, “	15,000,000	“
“ “ 3, “	15,000,000	“
“ “ 4, Shepard.....	6,000,000	“

II. Upper House (Distributing).

Engine No. 2, Holly.....	6,000,000	gallons
“ “ 1, “ Reserve.....	3,000,000	“
Water pumped, 1883.....	8,568,445,200	gallons.
“ “ 1882	7,076,212,870	“
<hr/>		
Increase, 1883.....	1,492,232,330	gallons.

DAILY SUPPLY.

The average daily supply for the year 1883 was twenty-three million four hundred and seventy-five thousand one hundred and ninety-two gallons, an increase of two million three hundred and three thousand four hundred and twenty-eight gallons over the previous year. On the following days the greatest and least amounts were pumped:

GREATEST AMOUNTS PUMPED.

Monday, February 5, 1883.....	33,077,000	gallons.
Tuesday, February 1, 1883.....	31,784,000	“
Tuesday, February 8, 1883.....	31,075,000	“

LEAST AMOUNTS PUMPED.

Sunday, July 7, 1883.....	16,238,900	gallons.
Sunday, October 14, 1883.....	16,315,700	"
Sunday, October 28, 1883.....	16,095,800	"

THE FOLLOWING GIVES NAMES OF ALL REGULAR EMPLOYEES
AND THE WAGES PAID EACH ON DEC. 31, 1883.

Board of Water Commissioners.

	Per Annum.	Per Day.
James N. Scatcherd, President.....		\$2.00
Louis P. Reichert, Secretary.....		2.00
James Ryan.....		2.00

Superintendent.

Louis H. Knapp.....	\$2,000
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Registrar.

John T. Rees	\$1,300
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Cashier.

Gustavus C. Grimard	\$1,200	
John Scanlon, Clerk	800	
Charles H. Bieber, Clerk	800	
Charles A. Perry, Clerk	800	
Moritz Koenig, Draughtsman.....	800	
Adelbert Hosterman, Draughtsman.....	800	
Edward J. Brady, Locating Hydrants and Valves.		\$2.00
James T. Ryan, Locating Hydrants and Valves...		2.00
Garrett W. Doyle, Inspector		2.00
Dennis Ryan, Inspector.....		2.00
Robert Clarkson, Inspector		2.00

	Per Annum.	Per Day.
Andrew Fuller, Inspector.....		\$2.00
J. Hodge, Inspector.....		2.00
John C. Mullen, Inspector.....		2.00
F. Wagner, Inspector		2.00
E. Funk, Inspector		2.00
Patrick Ryan, Tapper.....		2.50
D. Kelly, Helper		1.75

Store House.

James J. Collins, Foreman Repairs.....	\$1,000	
James Stratford, Store keeper.....	750	
Charles E. Richardson, Time-keeper	800	
George Schneider, Plumber		\$2.00
John L. Fisher, Helper.....		1.75
Owen Ryan, Hostler.....	660	
Samuel Williams, Carpenter		1.75
Jacob Fisher, Teamster.....		1.75
John Lanahan, Watchman.....		1.50
J. Pendergrast, Repairer.....		2.25
Patrick Taughrin, Repairer.....		1.75
John Higgins, Repairer.....		1.75
D. Cavany, Repairer.....		1.75
Patrick Winnehan, Repairer.....		1.75
Jacob Moest, Repairer.....		1.75
C. Prichard, Repairer.....		1.75
F. Kibler, Repairer.....		1.50

Lower Pump House.

Patrick Brennan, Engineer in charge.....	\$1,500	
Hugh Cameron, Engineer.....	1,100	
Augustus Hoffman, Engineer.....	900	
Edward Hayes, Fireman.....		\$2.00
J. Conley, Fireman.....		2.00

THE BUFFALO CITY WATER WORKS.

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	Per Annum.	Per Day.
N. Hewitt, Fireman.....		\$2.00
E. Hodgkins, Fireman.....		2.00
H. Clark, Fireman.....		2.00
W. Abrahams, Fireman.....		2.00
G. Hart, Fireman.....		2.00
J. Hickey, Coal passer.....		1.50
W. Roche, Coal passer.....		1.50
P. Maher, Watchman, reservoir.....		1.00
J. Fisher, Watchman, reservoir.....		1.00
A. Conway, Lamp Lighter and Laborer.....		1.75
A. Prentice, Blacksmith.....		2.00
P. J. Hanavan, Tallyman.....		2.00
C. Herman, Tallyman.....		2.00
J. Williams, Laborer.....		1.50
J. Qualey, Laborer.....		1.50
G. Walsh, Laborer.....		1.50
P. M'Cue, Laborer.....		1.50
M. Curry, Laborer.....		1.50

Upper Engine House.

Luke Mullany, Engineer.....	\$1,000	
Philip Brown, Engineer.....	1,000	
James Griffin, Fireman.....	780	
Samuel Victory, Fireman.....	780	
J. Cutler, Laborer.....		\$1.50
J. Tregilgus, Laborer.....		1.50

INVENTORY.

INVENTORY.

OFFICE.

- | | |
|---------------------------|-------------------------------------|
| 1 Diebold safe. | 1 Clock. |
| 1 Double desk. | 2 Cashier's stamps. |
| 1 Wall desk. | 2 Register's stamps and pad. |
| 3 Low desks. | 2 Superintendent's stamps and pads. |
| 1 Cash counter and desk. | 2 Letter files. |
| 1 Public desk. | 10 Spindles. |
| 2 Large tables. | 2 Mucilage stands. |
| 2 Small tables. | 1 Hammer. |
| 1 Letter press and stand. | 1 Pair pliers. |
| 1 Brush and cup. | 2 Corkscrews. |
| 1 Set pigeon holes. | 1 Steel file. |
| 1 Drawing table. | 14 Inkstands. |
| 1 Cabinet. | 1 Acid stand. |
| 1 Model inlet pier. | 1 Sponge and cup. |
| 1 Map and case. | 5 Paper weights. |
| 1 Map and frame. | 2 Letter openers. |
| 15 Chairs. | 5 Brass clips. |
| 4 High stools. | 2 Pen racks. |
| 1 Book stand. | 2 Paper cutters. |
| 10 Cuspadores. | 3 Bill holders. |
| 1 Mirror. | 1 Shears. |
| 1 Letter scale. | 2 Book rests. |
| 1 Webster's dictionary. | 1 Duster. |
| 1 Hektograph. | 1 Broom. |
| 1 Wardrobe. | 1 Comb and brush. |
| 1 Brush. | 2 Paper tearers. |
| 1 Drop light. | |

1 Step ladder.	3 Waste paper baskets.
1 Letter box.	1 Door mat.
2 Tin boxes.	2 Water glasses.
1 Water gauge.	2 Paper tearers.
2 Tin boxes.	2 Rulers.
3 Cash boxes.	13 Pen holder.
4 Spanners.	6 Towels.
1 Call bell.	1 Blue pencil holder.
1 Paper holder.	Stationery.
2 Match safes.	Office books.
2 Soap dishes.	1 Thermometer.
2 Drawing boards and horses.	2 Tumblers.
Drawing instruments.	1 Cuspadore.
Drawing paper.	1 Broom.
3 Maps elevation pump house.	1 Wash stand.
5 Chairs.	1 Bowl and pitcher.
1 High stool.	1 Towel.
2 Inkstands.	1 Foot board.
5 Turn-off keys.	1 Shovel.
2 Spoons.	1 Office rail.
1 Pick.	1 Chest.
1 City Directory.	1 Water cooler.
5 Bill boxes.	1 Hone.

MAIN STORE ROOM.

128 6-inch Eddy valves.	8 Single shieve blocks for hanging hose, with 50 feet rope to each block.
49 4-inch Eddy valves.	
2 4-inch Ludlow valves.	
4 6-inch Ludlow valves.	15 Lengths hose.
5 4-inch Cassen valves.	1 14-ft. ladder.
5 6-inch Cassen valves.	1 No. 1 ditch wagon.
1 12-inch Ludlow valve.	1 No. 2 ditch wagon.
1 12-inch Eddy valve.	1 No. 3 ditch wagon.
1 10-inch Eddy valve.	1 No. 4 two-wheel wagon.

- | | |
|--|---|
| 1 16-inch Eddy valve. | 2 Iron double shieve blocks. |
| 1 20-inch Eddy valve. | 1 Barrel skid. |
| 3 16-inch Ludlow valves. | 1 Pair 1-inch blocks with rope. |
| 3 10-inch old Ludlow valves,
not much good. | 1 Piece 1½-inch rope, 40 feet,
old. |
| 6 Ludlow hydrant tops. | 1 Piece 1½-inch rope, 20 feet,
old. |
| 5 17½-inch spur wheels. | 1 Piece 1½-inch rope, 80 feet,
good. |
| 2 6-inch pinions with shafts. | 1 Piece 1½-inch rope, 100 feet,
new. |
| 5 10½-inch pinions. | 1 Piece 1½-inch rope, 60 feet,
old. |
| 5 Large furnaces. | 1 Piece 1¼-inch rope, 72 feet,
old. |
| 3 Small furnaces. | 1 Sling, 10 feet long. |
| 5 Large lead pots. | 1 Pair patent shieve blocks,
¾-in. with 250 ft. rope, new. |
| 3 Small lead pots. | 3 Street carts. |
| 8 Large grates. | 1 Hand cart. |
| 3 Small grates. | 1 Truck. |
| 7 10-inch wood plugs. | 68 4-inch wood plugs. |
| 11 12-inch wood plugs. | 50 Old iron 6-inch plugs. |
| 2 Pipe scrapers and brushes. | 26 Old iron 4-inch plugs. |
| 2 Pairs 1½-inch blocks with
rope. | — Lbs. tarred rope for gasket. |
| 1 Hand sleigh. | 1 Glass door. |
| 1¾ Barrels cement. | 1 Coal scoop. |
| 1 Barrel slacked lime. | 7 Hand tool boxes. |
| 1 Chime Peal stove, old. | 2 Pairs ice tongs. |
| 2 Tables. | 2 Ice chisels. |
| 2 Ditch water hand barrows. | 2 Galvanized buckets for Inlet
Pier. |
| 6 Coke boxes. | 4519 Lbs. tarred rope for gasket. |
| 14 Wheelbarrows. | 210 Lbs. waste for gasket. |
| 3 Old oil barrels. | |
| 1 Small barrel, half full, tar. | |
| 3 Pairs skids. | |
| 9 Wood hydrant boxes. | |
| 2 Tons of stove coal. | |
| 1 Trident derrick. | |

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| 3 Geared windlass derricks. | 4 Old wood water logs, relics |
| 100 Bushels coke. | 1 Length cement cased with |
| 2 Loads clay. | iron water pipe as relic. |
| 36 6-inch wood plugs. | 1 1200-lbs. scales. |
| 1 Stearns & Marvin safe, contents. | 1 Wash basin on stand. |
| 1 Old record book. | 1 Old sword. |
| 11 Old day books. | 1 Fire shovel. |
| 9 Old index books. | 1 Watering pot. |
| 6 Old time books. | 1 Dozen pens. |
| ½ Bottle purple ink. | 2 Pen racks. |
| ½ Bottle black ink. | 2 Paper weights. |
| 1 Battery for blasting. | 1 Ruling pen. |
| 1 Small book case. | 2 Rulers. |
| 1 Pedestal writing desk. | 1 Washer cutter. |
| 1 Writing table. | 2 Lead pencils. |
| 3 Wood seat arm chairs. | 2 Day books, in use. |
| 1 Cane seat and back chair. | 4 File hooks. |
| 1 Letter and bill rack. | 2 Ditch delivery stub books |
| 2 Inkstands. | 4 Pen holders. |
| 2 Red ink bottles. | 1 Eraser. |
| 1 Mucilage bottle. | 3 Old tape lines, 20, 40, 50 ft |
| 4 Directories, 1875-81-82-83. | 4 Bill clamps. |
| 1 Old 8-day clock, won't go. | 21 Large head drawing tacks |
| 1 Telephone. | 1 Feather duster. |
| 1 Heating stove. | 1 File stand. |
| 2 Spittoons. | 1 Rubber eraser. |
| 1 Coal scuttle. | 1 Fire alarm gong. |
| 1 Waste basket. | 1 Riveting hammer. |
| 1 Die stock and two taps. | 1 Time book. |
| 14 Lantern filling stoppers. | 11 1-inch Union meter glasses |
| 1 Double cupboard. | 2 10-inch Gem meter glasses |
| | 24 2-inch Gem meter glasses. |

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| 12 Short blocks superintendent's report. | 15 4-inch Gem meter glasses. |
| 3 Long blocks superintendent's report. | 11 2-inch Worthington meter dials. |
| 3 Blocks foreman's report. | 14 2-inch Gem meter dials. |
| 2 Blocks memorandums. | 6 6-inch Gem meter dials. |
| 8 Blocks card papers. | 17 4-inch Union meter dials. |
| 3 Rubber washers for Ludlow hydrants. | 7 6-inch Union meter dials. |
| 2 Thermometers. | 6 2-inch Union meter dials. |
| 8 Gross $1\frac{1}{4}$ -inch wood screws. | 20 4-inch three-cornered files |
| 1 Gross $1\frac{1}{2}$ -inch wood screws. | 1 3-inch rat-tail file. |
| 1 Gross $1\frac{3}{4}$ -inch wood screws. | 2 4-inch rat-tail files. |
| 7 Gross 1-inch wood screws. | 2 5-inch rat-tail files |
| $\frac{1}{2}$ Gross $\frac{3}{4}$ -inch wood screws. | 2 6-inch rat-tail files. |
| 1 Gross 3-inch wood screws. | 2 8-inch rat-tail files. |
| 1 Gross $2\frac{1}{4}$ -inch wood screws. | 2 9-inch rat-tail files. |
| 50 Feet $\frac{1}{2}$ -inch rubber tubing for hydrant pumps. | 2 8-inch square files. |
| 9 4-inch Union meter glasses. | 1 Old 8-inch flat file. |
| 11 3-inch Union meter glasses. | 1 Stock, 3 taps and dies. |
| 1 Book rest board. | 1 City map. |
| | 2 Requisition blank books. |
| | 1 Spirit level. |
| | 1 5-inch flat file. |

TOOLS IN J. J. COLLINS' WAGON.

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| 1 Valve key. | 1 Street key. |
| 1 Shovel. | 1 Oak pail. |
| 2 14-inch flat bastard files. | 1 Washer key. |
| 1 S Wrench. | 1 Packing hook. |
| 1 Pair valve tongs. | 1 Long spanner. |
| 3 Calking hammers. | 6 Cold chisels. |
| 2 Cutting tools. | 1 Screw-driver. |
| 1 12-inch monkey-wrench. | 1 15-inch monkey-wrench. |
| 1 8-inch monkey-wrench. | 1 Riveting hammer. |

5 Calking tools.	1 Small saw.
1 Tape line.	1 Steel bar.
1 Hand-saw file.	1 Hayes hyd't claw-wrench.
1 Cape chisel.	1 Sledge.
1 Pine Pail.	2 Crotch hydrant wrenches.

TOOLS, ETC., IN J. J. COLLINS' WAGON AND STREET CARTS.

CART NO. 3.

2 Shovels and 1 steel bar.	1 Pick.
1 Pair tongs.	1 Extension key-wrench.
1 Hydrant cap-key.	4 Crotch keys.
1 Small saw.	1 Riveting hammer.
1 10-inch and 1 8-inch file.	1 8-inch monkey-wrench.
1 Gasket iron.	2 Cold chisels.
1 Calking hammer.	3 Calking tools.
1 Pine water pail.	

CART NO. 2.

1 Long spanner and 1 short spanner.	1 Tee screw-driver.
1 Steel bar.	2 Free hydrant keys.
1 Extension key-wrench.	1 Pair tongs.
2 Calking tools.	3 Crotch hydrant wrenches.
1 Long spanner.	1 Small hand-saw.
1 15-inch monkey-wrench.	1 Calking hammer.
5 Cold chisels.	1 Screw driver.
1 Oil can.	4 Calking tools.

CART NO. 1.

2 Shovels.	2 Picks.
1 40-foot tape line.	1 Valve key.
1 Oil can.	1 Long spanner.

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| 1 12-inch monkey-wrench. | 1 Small saw. |
| 2 Gasket irons. | 1 14-inch bastard file. |
| 3 Cold chisels. | 3 Calking tools. |
| 1 Slide wrench, broken. | 1 Crotch hydrant wrench. |

INVENTORY OF STOCK AND FIXTURES IN STORE ROOM NO. 1,
ON COURT STREET.

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| ½ Barrel kerosene oil. | 1 Testing rod draw-bar. |
| 10 Gals. black oil. | 1 Steel crowbar. |
| 1 Gal. boiled Linseed oil. | 3 Ditch spades. |
| 12 Lbs. Venetian red. | 4 Tunnels with rubber hose attached. |
| 25 Lbs. red lead. | 4 Other tunnels. |
| 2 Lbs. lamp black. | 2 1-qt. measures. |
| 4 Paint pots. | 1 Filling oil can. |
| 4 Old paint brushes. | 5 Lbs. copper wire. |
| 3 New paint brushes. | 3 Lbs. brass wire. |
| 12 Torches. | 12 Lantern stakes. |
| 17 Tubular lanterns. | 6 New pine pails. |
| 4 Other kinds of lanterns. | 4 Old pine pails. |
| 12 Red globes. | 5 New oak pails. |
| 24 White globes. | 5 Old oak pails. |
| 1 5-gal. linseed oil can. | 3½ Boxes soap. |
| 1 3-gal. linseed oil can. | 7 Corn brooms. |
| 4 2-gal. kerosene oil cans. | 7 Coca brooms. |
| 1 1-gal. kerosene oil can. | 3 Scrubbing brushes, corn. |
| 2 5-gal. kerosene oil cans. | 3 Cane brushes. |
| 1 3-gal. gasoline can. | 40 Lbs. 6-penny nails. |
| 3 Long copper pipe oiling cans. | 75 Lbs. 10-penny nails. |
| 4 Short tin oiling cans. | 40 Lbs. clinch nails. |
| 3 Brass hydrant pumps. | 270 Lbs. 30-penny spikes, cut. |
| 1 Tin barrel pump. | 75 Lbs. 6-inch spikes, cut. |
| 12 Pick handles. | 1½ Kegs 8x3/8-inch boat spikes. |
| 8 Axe handles. | |

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| <ul style="list-style-type: none"> 16 Drill bars. 4 $\frac{5}{8}$-inch steel testing rods. 3 Hayes hydrant wrenches. 1 Pair nipper tongs. 1 New kind free hydrant top. 2 Hoes. 5 2-inch augers. 1 $1\frac{1}{2}$-inch auger. 4 Hand-saws. 400 Long meter seals. 500 Short meter seals. 5 Lbs. tallow and 2-gallon tal-
low pail. 90 Lbs. rubber packing. 9 Pairs strap hinges. 2 Pairs tee hinges. 8 Hinge clasps. 4 12-inch Cassen valve stems. 6 10-inch Cassen valve stems. 2 20-inch Cassen valve stems. 2 16-inch Cassen valve stems. 5 6-inch Cassen valve stems. 4 4-inch Cassen valve stems. 4 20-inch Ludlow, old style. 1 24-inch Ludlow, old style. 2 36-inch Ludlow, old style. 6 16-inch Ludlow, old style. 6 12-inch Ludlow, old style. 6 10-inch Ludlow, old style. 25 Brass hydrant nozzles. 10 $5\frac{1}{2} \times \frac{1}{4}$-inch carriage bolts. 66 $2 \times \frac{3}{8}$-inch carriage bolts. 97 $1\frac{3}{4} \times \frac{3}{8}$-inch carriage bolts. 100 $2\frac{1}{4} \times \frac{5}{8}$-inch tire bolts. | <ul style="list-style-type: none"> 25 lbs. 8-penny nails. 1 1-ton Weston chain block. 2 36-in. valve stem nuts, extra. 1 20-inch old Ludlow stem. 4 4-inch Ludlow valve stems. 5 6-inch Ludlow valve stems. 4 Taps, $\frac{1}{2}$, $\frac{3}{4}$, 1 and $1\frac{1}{4}$ in. 4 Drills and 4 reamers to
match. 1 Pawl ratchet. 1 Pair cutting plyers. 1 Leather punch. 1 Socket wrench. 1 Service wrench. 30 Lbs. of scrap leather for
pump valves. $\frac{1}{2}$ Quire sand-paper. $\frac{1}{4}$ Quire emery cloth. 3 15-inch monkey-wrenches. 1 12-inch monkey-wrench. 2 Lbs. $\frac{3}{8}$-inch copper rivets. 2 Lbs. $\frac{1}{2}$-inch copper rivets. 1 Lb. $\frac{3}{4}$-inch copper rivets. 4 Lbs. $\frac{3}{4}$-inch clout nails. 1 Lb. tinned rivets. 142 Small staples. 49 Hooks. 7 Lbs. $\frac{1}{2}$-inch washers. 32 Lbs. miscellaneous sizes. 12 Brass hydrant stem tops. 5 $3\frac{1}{2}$-inch tin pump valves. 8 3-inch tin pump valves. 8 Old locks without keys. 1 Lb. red chalk. |
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| 200 $2 \times \frac{1}{8}$ -inch tire bolts. | 1 Lb. white chalk. |
| 100 $2 \frac{1}{2} \times \frac{1}{4}$ -inch tire bolts. | 1 Stencil brush and box. |
| 6 $1 \frac{1}{2} \times \frac{3}{8}$ -inch carriage bolts. | $\frac{1}{2}$ Stick stove polish. |
| 9 $1 \frac{1}{4} \times \frac{1}{4}$ -inch carriage bolts. | 1 Brass squirt can, new. |
| 30 $2 \times \frac{1}{4}$ -inch carriage bolts. | 4 Old squirt cans. |
| 4 $1 \times \frac{3}{8}$ -inch carriage bolts. | 1 Double cupboard. |
| 13 $1 \frac{3}{4} \times \frac{1}{4}$ -inch carriage bolts. | 1 Hand hatchet. |
| 107 $1 \frac{3}{4} \times \frac{1}{8}$ inch carriage bolts. | 17 $\frac{3}{8}$ -in. Dies for stamp'g figs. |
| 6 $3 \times \frac{3}{8}$ inch carriage bolts. | 2 $\frac{3}{4}$ -inch W. W. |
| 42 $2 \frac{1}{2} \times \frac{1}{4}$ -inch carriage bolts. | 1 B. W. W. |
| 94 $2 \frac{1}{4} \times \frac{1}{4}$ -inch carriage bolts. | 22 Torch and can screw tops. |
| 172 $2 \frac{1}{4} \times \frac{1}{8}$ -inch carriage bolts. | 2 Hose couplings. |
| 93 $2 \times \frac{1}{8}$ inch carriage bolts. | 1 Stove blacking brush. |
| 50 $2 \frac{3}{4} \times \frac{1}{4}$ -inch carriage bolts. | 30 Cold chisels. |
| 43 $3 \times \frac{1}{4}$ -inch carriage bolts. | 31 Cold chisels at pump house to repair. |
| 17 $3 \frac{1}{2} \times \frac{1}{4}$ -inch carriage bolts. | 11 Cape chisels. |
| 4 $4 \frac{3}{4} \times \frac{1}{4}$ -inch carriage bolts. | 20 Cutting tools. |
| 48 $4 \times \frac{1}{8}$ -inch carriage bolts. | 74 Calking tools. |
| 30 $3 \frac{1}{2} \times \frac{1}{8}$ -inch carriage bolts. | 16 Calking hammers. |
| 45 $4 \frac{1}{2} \times \frac{1}{8}$ -inch carriage bolts. | 8 Calking tools with handles. |
| 8 Lbs. iron rivets, black. | 2 Long cold chisels. |
| 10 Lbs. $1 \frac{1}{2}$ -in. finishing brads. | 6 Casket irons. |
| 19 Brass clamps for valves. | 6 Old trowels. |
| 36 Brass bolts for valves. | 1 Wood mallet. |
| 18 S'hooks for hydrant chains. | 2 Cooper's hoop drivers. |
| 8 Dozen lamp wicks. | 34 Lbs. Italian hemp packing. |
| 4 File handles. | 6 Ditch lines. |
| 3 12-inch mill files. | 8 Broken self-closing cocks. |
| 3 14-inch mill files. | 15 Hammer handles. |
| 4 14-inch mill files. | 5 $\frac{3}{4}$ -in. stop and waste cocks. |
| 4 14-inch flat bastard files. | 1 $\frac{3}{4}$ -inch stop and lever cock. |
| 1 10-in. flat recut bastard file. | with lever handle. |
| 1 12-inch flat bastard files. | |

2 14-inch flat bastard files.	1 1¼-inch lever handle tops cock and waste.
3 14-in. half-round bastard files.	29 ½-inch plugs.
1 12-inch old mill file.	21 ⅝-inch plugs.
1 8-inch old mill file.	18 ¾-inch plugs.
7 4-inch tin pump valves.	305 Lbs. old yokes and eye-bolts
8 1-inch plugs.	Collignon hydrants.
632 ½-inch corporation cocks.	13 Lbs. sheet lead.
83 ⅝-inch corporation cocks.	42 Lbs. old goose-necks and free hydrant keys, staples, etc.
7 ¾-inch corporation cocks.	120 Miscellaneous bolts, ¾ to ½-inch.
26 1-inch corporation cocks.	60 ½-inch tap bolts.
40 Self-closing faucets.	24 Cement pipe corporation cocks.
31 Lever handle faucets.	3 Branding irons.
50 Feet of pieces ½-inch rubber tubing.	1 Cleaver.
25 Feet block tin tubing.	1 Hydrant valve wrench.
4 Feet 1-inch lead pipe.	1 Old book and letter-press.
1 Kerosene oil stove, heaters etc., complete for blasting purposes.	30 Feet halter chain.
1 Reel, for leading wire.	100 Old hydrant cap chains.
1 2-gal. tin powder pail.	2 Tapping jacks.
1 Trumpet.	3 Pairs tugs.
1 Coil leading wire	3 Rachets with handles.
68 Feet fuse.	5 Old drinking dippers.
4 Packages ^o exploders, 50 each.	2 Free hydrant drinking cups.
4 Bunches leading wire.	1 Hydrant clamp and chain.
1 Box for utensils.	1 12-inch, 2 10-inch iron plugs, used for oil catchers.
38 Hayes hydrant caps.	4 Panes glass, 11x18-inch.
15 Brass hyd't caps for faucets.	1 Tee handle screw-driver.
40 Lbs. old lead pipe.	2 5-inch pinions.
12 Bolts ¾x4½-inch.	1 10-inch pinions, with shaft.
11 Bolts ¾x8-inch.	13 Pail covers.
14 Bolts ⅝x8-inch.	
2 Bolts ¾x16-inch.	

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| 2 Old brass hydrant pumps. | 1 $\frac{7}{8}$ -inch auger bit. |
| 1 Small lead ladle. | 2 Old steam gauges. |
| 1 Garden rake. | 20 Valve stem tops. |
| 1 Rubber mop, 1 rag mop. | 24 Valve glands. |
| 515 Meter bolts, $\frac{1}{2}$ and $\frac{5}{8}$ -in.
from 2 to 3 inches long. | |

STOCK AND FIXTURES IN FRONT YARD.

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| 22 Lengths 4-inch pipe, average
234 lbs. | 2 6-in. single sleeves, 4 sect'l
branches. |
| 21 Lengths 6-inch pipe, average
398 lbs. | 1 36-inch sectional sleeve,
1390 lbs. |
| 43 Feet of pieces, 6-inch. | 8 16-inch sectional sleeves, av-
erage 360 lbs. |
| 125 Feet of 4-inch pieces. | 2 20-in.sec'l sleeves, av.424 lbs. |
| 1 Length of 20-inch, 1842 lbs. | 1 20-inch sectional branch,
6-inch outlet, 224 lbs. |
| 2 Lengths of 16-inch, 1356—
1404 lbs. | 1 16-inch sectional branch,
6-inch outlet, 180 lbs. |
| 5 Lengths of 10-inch, average
620 lbs. | 1 36-inch sectional branch,
6-inch outlet, 800 lbs. |
| 20 Feet pieces of 10-inch. | 1 12-inch sectional branch, 6-
inch outlet. |
| 10 Drinking fountains | 65 4-inch sleeves, average 46
lbs. |
| 97 7-inch valve boxes, L., aver-
age 215 lbs., complete. | 29 6-inch sleeves, average 66
lbs. |
| 4 7-inch valve boxes, short I,
average 165 lbs., complete. | 69 6-inch double hubs, average
66 lbs. |
| 5 11-inch valves short, average
400 lbs. each. | 48 4-inch double hubs, average
53 lbs. |
| 13 Old Hayes hydrants, good
order. | 16 6-inch meter connections,
average 325 lbs. |
| 1 Ludlow hydrant, good order. | |
| 2 Hayes double hydrants, no
cases. | |
| 5 3-foot 10-inch valve boxes, | |

- middles, average 76 lbs., 5 feet middles, average 130 lbs.
 35 12-inch iron plugs, average 84 lbs.
 10 12-inch short plugs.
 37 10-inch long plugs.
 41 6-inch plugs, average 37 lbs.
 52 4-inch long plugs, average 20 lbs.
 7 6-inch short plugs.
 13 6-inch sectional sleeves, average 121 lbs.
 9 4-inch sectional sleeves, average 66 lbs.
 6 Large size 6-inch sleeves, average 97 lbs.
 5 8-inch sectional sleeves.
 1 12 to 6-inch reducer.
 3 8 to 6-inch reducers, average 147 lbs.
 3 12 to 6-inch short reducers.
 9 12-inch sleeves, av. 195 lbs.
 8 16-inch sleeves, av. 285 lbs.
 35 10-inch double hubs, average 132 lbs.
 26 12-inch double hubs, average 173 lbs.
 26 6-in. double, 6-in. branches, average 205 lbs.
 5 6-in. single, 6-in. branches, average 170 lbs.
 25 6-inch double, 4-in. branches, average 146 lbs.
 28 4-inch meter connections, average 246 lbs.
 3 10-inch offset bends, average 284 lbs.
 1 12-inch offset bend, 329 lbs.
 2 8-inch single, 4-in. branches.
 6 12-in. single, 6-in. branches, average 375 lbs.
 1 12-in. single, 4-in. br'ch, 375 lbs.
 2 12-in. single, 10 in. branches, average 410 lbs.
 1 10-in. double, 10-in. branch 429 lbs.
 2 12-inch $\frac{1}{4}$ bends, 342 lbs.
 7 10-inch $\frac{1}{4}$ bends, 304 lbs.
 4 10-inch $\frac{3}{8}$ bends, 220 lbs.
 4 12-inch $\frac{3}{8}$ bends, 242 lbs.
 4 10x12 inch reducers, 293 lbs.
 4 10 to 6-inch reducers, 170 lbs.
 1 6-inch offset bend, average 120 lbs.
 20 4-inch $\frac{1}{4}$ bends, av. 85 lbs.
 50 4-inch $\frac{3}{8}$ bends, av. 76 lbs.
 14 3-inch $\frac{1}{4}$ bends, av. 55 lbs.
 1 36-inch pipe tongs.
 1 24-inch pipe tongs.
 1 12-inch pipe tongs.
 1 10 inch pipe tongs.
 1 Length 36-inch pipe, 5,000 lbs.
 12 6-inch $\frac{1}{8}$ bends, average 100 lbs.
 35 6-inch single, 4-in. branches,

25 6-inch offset bends, average 129 lbs	average 189 lbs.
6 6 to 4-inch short reducer, average 48 lbs.	18 6-inch $\frac{1}{4}$ bends, av. 129 lbs.
20 6-inch $\frac{1}{8}$ bends, av. 124 lbs.	55 6 to 4-inch offset reducers, average 66 lbs.
1 4 to 3-inch long reducers.	66 6 to 4-inch long reducers, average 106 lbs.
25 6-inch single, 4-inch short branches, all hubs, average 120 lbs.	50 4-in. double, 4-in. branches, average 133 lbs.
6 4-inch single, 4-inch short branches, all hubs, average 120 lbs.	1 4 to 3-inch reducer, 66 lbs.
	19 4-inch single, 4-inch long branches, average 105 lbs.
	16 4-in. offset bends, av. 84 lbs.

BACK YARD.

9 3-inch goose-neck bends, old stock.	4-inch bend with flanges for meters.
4 4-inch goose-necks.	1 4-in. flanged branch, 122 lbs.
1 4-in. flanged branch, 81 lbs.	3 3-in. flange pipes, 24 lbs. ea.
1 4-in. flange pipe, 34 lbs.	6 6 inch goose-necks, 207 lbs
30 Old style valve box covers.	16 Valve box reducers.
8 5-foot valve box middles, av- erage 130 lbs.	2 Street boxes, relics.
1 36-inch sleeve, 990 lbs.	1 Ketcham street box.
3 20-inch sleeves, av. 590 lbs.	1 24-inch sleeve, 765 lbs.
1 10-inch meter strainer.	120 Flagging stones.
2 20-in. $\frac{1}{8}$ bends, av. 132 lbs.	15 Loads sand.
2 16-inch $\frac{1}{8}$ bends.	1800 Brick.
1 16 to 12-inch old reducer and sleeve leaded on it.	4 Cords slab wood.
15 Feet of 16-inch pipe, pieces.	$\frac{1}{4}$ Cord hard wood.
3 Lengths of 10-inch pipe.	1 Cogswell fountain.
28 Feet of pieces, 10-inch pipe.	32 Old hydrants to overhaul and most to be broken up.
1 36-inch yoke.	150 Hydrant boxes, new.
1 Length of 12-inch pipe.	19 Feet of 8-inch pipe, pieces.
	106 Feet of 12-inch pipe, pieces.

24 3-inch vitrified hub tile, 2 ft. long.	43 6-inch vitrified hub tile, 2 ft. long.
5 4-inch vitrified hub tile, 2 ft. long.	1 4-inch tile bend.
39 9-inch vitrified tile, 2 ft. long.	4 4-inch common tile.
15 15-in. vitrified tile, 2 ft. long.	20 12-in. vitrified tile, 2 ft. long.

TAPPER'S TOOLS.

2 Tapping jacks, good.	17 $\frac{1}{2}$ -inch drills.
2 Tapping jacks, out of repair.	6 $\frac{5}{8}$ -inch drills.
1 6 foot chain.	5 $\frac{3}{4}$ -inch drills.
2 3-foot chains.	2 1-inch drills.
1 5-foot chain.	2 $\frac{3}{4}$ -inch plugs.
1 50-foot tape-line.	4 $\frac{5}{8}$ -inch plugs.
2 S wrenches.	3 $\frac{1}{2}$ -inch plugs.
1 Hammer.	1 $\frac{1}{2}$ -inch corporation cock.
2 Ratchets for drills, good.	2 $\frac{5}{8}$ inch corporation cocks.
3 Ratchets for drills, old.	2 $\frac{3}{4}$ -inch corporation cocks.
4 Drill sockets.	1 Brass squirt can.
2 Plug drifts.	1 Pick.
1 10-inch monkey-wrench.	1 Shovel.
1 Short spanner.	1 Street key.
2 Cold chisels.	1 Street spoon.
1 8-inch mill file.	1 Steel bar.
4 Pairs tugs.	1 35-lb. weight to tie horse.
1 Wrench for street box top.	

IN ROOM No. 3.

73 Picks.	1 Valve gland key.
110 Picks at pump house to repair.	2 $\frac{3}{4}$ -inch socket keys.
52 Pounders.	7 Hose keys.
	3 Street box spoons.

3 Copper hydrant pumps.	1 2½-inch open claw-wrench.
6 Copper ditch pumps with extensions.	3 Valve hooks.
8 Galvanized iron pumps.	8 Large lead ladles.
2 Iron pumps with extensions.	7 Small lead ladles.
6 Old brass pump valves.	8 Furnace bars.
22 Short spanners, old style.	3 Ring and hook 5/8-in. chains.
3 Old axes.	1 Double hook 5/8-inch chain.
3 New axes.	2 Double claw-hook chains.
3 Paving hammers.	1 Hook and ring swivel 3/8-in. chain.
2 Paving pounders.	13 Crowbars.
1 Sect'l sleeve claw-wrench.	12 Old drill bars.
1 Grub hoe.	31 Pipe sticks.
2 Wood pavement cleavers.	5 4½-inch rollers, wood.
1 Force pump.	3 2½-inch rollers.
20 Socket valve keys, various sizes.	2 Large sledges.
6 Open valve keys.	7 Small sledges.
2 Street keys.	1 Pair 36-inch pipe clamps.
3 Hydrant stem keys, old style.	1 24-inch pipe clamp.
2 Hydrant calking irons.	1 Old oak pail.
12 Hydrant fork keys.	1 1½-ton Wiston chain block.

IN CARPENTERS' SHOP.

1 Cupboard.	384 Feet 3-inch pine plank.
1 Wash bench.	320 Feet 2-inch pine plank.
1 Grindstone and frame.	38 Hemlock 2x4-in. scantlings.
1 Anvil.	135 Hydrant box staves.
300 Holly hyd'nt brackets, wood.	42 Hydrant box covers.
3 Round top hy'nt boxes, wood.	19 Square valve boxes, wood.
400 Old Hayes hydrant brackets.	40 Hydrant box hoops.
500 Ft. 1-in. rough boards, pine.	200 Feet 1½-inch plank.
600 Feet matched flooring.	7 3x4-in. hemlock scantlings.
500 Feet hickory and ash plank.	800 Feet 1-inch hemlock boards.

PLUMBERS' STOCK AND FIXTURES, TOOLS, ETC., AT STORE HOUSE

17 1-inch Union meters.	1 Rasp.
18 1½-inch Union meters.	2 Cape chisels.
4 2-inch Union meters.	2 Cold chisels.
1 3-inch Union meter.	1 Flooring chisel.
2 4-inch Union meters.	1 Rivet set.
1 6-inch Union meter.	1 Solid punch.
1 2-inch Gem meter.	1 Small gasket iron.
1 3-inch Gem meter.	2 Soldering irons.
4 4-inch Gem meters.	1 Pair compasses.
1 6-inch Gem meter.	1 Gauge for wood.
3 1½-in. Worthington meters.	1 ½-inch wood chisel.
3 2-in. Worthington meters.	1 Pair small cutting plyers.
4 2-inch Standard meters, not any good.	1 Pair 12-inch gas plyers.
4 Old meters without names, no good.	1 Dresser.
2 10-inch propeller wheels.	1 Ball pin.
1 12-inch monkey-wrench.	1 Lead scraper.
1 15-inch monkey-wrench.	1 Compass saw.
1 20-inch monkey-wrench.	1 Ball plane hammer.
2 Socket meter wrenches.	1 Pair snips.
1 Extension S wrench.	1 Small hand-saw.
1 Solid S wrench.	1 Seal punch.
2 Screw-drivers.	1 Ladle.
2 14-inch flat files.	1 Mallet.
1 8-inch flat file.	1 Meter key.
1 Pair No. 4 tongs.	1 Pair No. 1 tongs.
1 Pair No. 5 tongs.	1 Pair No. 2 tongs.
1 Set stocks and dies, from ½ to 2 inch.	2 Pairs No. 3 tongs.
1 Set stocks and dies, from ¼ to 1-inch.	21 ¾-inch couplings.
1 Pipe cutter.	22 ½-inch nipples.
	32 1-inch nipples.
	9 1¼-inch nipples.
	33 1½-inch nipples.
	40 2-inch nipples.

- 1 Quart muriatic acid.
- 1 Small anvil.
- 2½ Sheets galvanized iron.
- 1 Pipe vise.
- 1 Common vise.
- 1 Center punch.
- 1 Pair 6 inch gas plyers.
- 3 Feet hose for testing meters.
- 3 Meter keys.
- 1 Gasoline furnace.
- 1 Lead pot.
- 1 Ladle.
- 1 Bit brace.
- 1 Drill brace.
- 17 Bars solder.
- 5 Lbs. of wiping solder.
- 5 4-inch meter strainers.
- 2 6-inch meter strainers.
- 8 10-inch meter strainers.
- 10 ½-inch couplings.
- 18 1-inch malleable elbows.
- 12 1¼-inch malleable elbows.
- 10 2-inch malleable elbows.
- 13 3-inch tees, cast.
- 10 2½-inch tees, cast.
- 14 2-inch tees, cast.
- 16 1½-inch tees, cast.
- 13 1¼-inch tees, cast.
- 16 1-inch tees, cast.
- 16 ¾-inch tees, cast.
- 31 ½-inch malleable iron tees.
- 37 ⅜-inch malleable iron tees.
- 1 2½-inch union.
- 8 2-inch unions.
- 30 3-inch nipples.
- 6 4-inch nipples.
- 5 7x3-inch flanges.
- 1 9½x4-inch flange.
- 1 12x6-inch flange.
- 3 3 to 4-inch meter reducers.
- 2 4 to 2 inch meter reducers.
- 1 6 to 4-inch meter reducer.
- 3 4 inch elbows, cast iron.
- 14 3-inch elbows, cast iron.
- 1 2½-inch elbow, cast iron.
- 11 2-inch elbows, cast iron.
- 27 1½-inch elbows, cast iron.
- 14 1¼-inch elbows, cast iron.
- 31 1-inch elbows, cast iron.
- 9 ¾-inch elbows, cast iron.
- 8 ½-inch elbows, cast iron.
- 12 ⅜-inch malleable elbows.
- 27 ½ inch malleable elbows.
- 8 ¾-inch malleable elbows.
- 2 1½x¾-inch bushings.
- 1 ¾x⅜-inch bushing.
- 2 2x1-inch bushings.
- 2 3x2-inch bushings.
- 1 2½x1-inch bushing.
- 4 1½ to 1-in. socket reducers.
- 1 2 to ¾-inch socket reducer.
- 3 3 to 2-inch socket reducers.
- 1 1½ to 2-in. socket reducer.
- 1 1¼ to 1-in. reducing elbow.
- 1 ¾ to ⅜-in. reducing elbow.
- 1 ¾ to ½-inch reducing elbow.
- 5 1¼ to 1-inch reducing tees.
- 3 1½ to 1¼-in. reducing tees.

7 $1\frac{1}{2}$ -inch unions.	1 2 to $1\frac{1}{4}$ -inch reducing tee.
17 $1\frac{1}{4}$ -inch unions.	1 $1\frac{1}{4}$ to $\frac{1}{2}$ -inch reducing tee.
9 1-inch unions.	1 $1\frac{1}{2}$ to $1\frac{1}{4}$ -in reducing tee.
21 $\frac{3}{4}$ -inch unions.	3 $1\frac{1}{4}$ to $\frac{3}{4}$ -inch reducing tees.
26 $\frac{1}{2}$ -inch unions.	1 $1\frac{1}{4}$ -inch cross-tee.
3 $2\frac{1}{2}$ x2-inch bushings.	8 $1\frac{1}{4}$ -inch caps, malleable.
3 3x2-inch bushings.	14 $\frac{1}{4}$ -inch caps, malleable.
1 $1\frac{1}{2}$ x $\frac{3}{8}$ -inch bushing.	11 $\frac{3}{4}$ -inch caps, malleable.
5 $\frac{3}{4}$ x $\frac{1}{4}$ -inch bushings.	11 1-inch caps, malleable.
13 2x $1\frac{1}{2}$ -inch bushings.	12 $1\frac{1}{4}$ -inch caps, malleable.
4 $1\frac{1}{2}$ x $1\frac{1}{4}$ -inch bushings.	1 $1\frac{1}{2}$ -inch cap, malleable.
3 1x $\frac{3}{4}$ -inch bushings.	5 1-inch plugs, cast.
3 $1\frac{1}{4}$ -inch plugs, cast iron.	307 Feet of $\frac{1}{4}$ -inch wrought iron pipe.
3 $1\frac{1}{2}$ -inch plugs, cast iron.	49 Feet of $\frac{3}{8}$ -inch wrought iron pipe.
3 2-inch plugs, cast iron.	108 Feet of $\frac{1}{2}$ -inch wrought iron pipe.
4 $\frac{3}{4}$ -inch street elbows, malleable.	156 Feet of $\frac{3}{4}$ -inch wrought iron pipe.
10 1-inch street elbows, malleable.	99 Feet of 1-inch wrought iron pipe.
20 $1\frac{1}{4}$ -inch street elbows, malleable.	90 Feet of $1\frac{1}{4}$ -inch wrought iron pipe.
16 $1\frac{1}{2}$ -inch street elbows, malleable.	98 Feet of $1\frac{1}{2}$ -inch wrought iron pipe.
10 $\frac{3}{4}$ -inch street elbows, malleable.	20 Feet of 2-inch wrought iron pipe.
11 1-inch street elbows, malleable.	44 Ft. $2\frac{1}{2}$ -in. wrought iron pipe.
13 $1\frac{1}{4}$ -inch street elbows, malleable.	50 Feet of 3-inch wrought iron pipe.
12 $1\frac{1}{2}$ -inch street elbows, malleable.	7 3-inch leather pump suckers.
1 2-in. street elbow, malleable.	1 Short spanner.
11 $\frac{3}{4}$ -inch lock nuts, cast.	460 Lbs. of old scrap iron pipe.
7 $\frac{1}{2}$ -inch lock nuts, cast.	

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| 3 Wing elbows, $\frac{3}{8}$ -inch, malleable. | 6 Union 3-inch meter dials. |
| 1 2 inch flange elbow, cast. | Ratchet pinions. |
| 4 Meter couplings 1-inch. | 3 Meter keys. |
| | 1 Inspector's badge. |

IN LOFT.

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|--------------------|--------------------|
| 22 Bails straw. | 1 Old buggy top. |
| 1 Ton marsh hay. | 1 Large oat bin. |
| 1 Ton timothy hay. | 3 Hay forks. |
| 75 Bushels oats. | 1 Deep sleigh box. |
| 1 Hay cutter. | |

IN LOWER BARN.

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| 1 Heavy spring wagon. | 1 Water trough. |
| 5 Horses. | 1 Heating stove. |
| 1 Mule. | 1 Boiler for stove. |
| 1 Buggy. | 50 Feet poor hose. |
| 2 Poor cutters. | 15 Feet poor hose. |
| 2 Sleighs. | 1 Coal scuttle. |
| 1 Bob sleigh. | 4 Old horse blankets. |
| 3 Interfering band pads. | 7 Good horse blankets. |
| $\frac{1}{2}$ Barrel salt. | 5 Light cotton horse covers. |
| 1 10-inch monkey-wrench. | 5 Cushions. |
| 1 Axle wrench. | 5 Whips, poor. |
| 4 Sets harness, good. | 3 Brooms. |
| 3 Sets harness, poor. | 1 Coca brush. |
| 2 Extra breast collars. | 2 Scrub brushes. |
| 2 Extra hame collars. | 3 Stove pokers. |
| 1 Martingale. | 2 Stable pails. |
| 4 Light spring wagons. | 2 Reflectors. |
| 6 Halters. | $\frac{1}{2}$ Lb. castile soap. |
| 1 Single whiffletree. | 1 Pint spirits of nitre. |
| 1 Double whiffletree. | 2 Mane brushes. |
| 2 Boxes axle grease. | 1 Rubber curry-comb. |

1 Straw fork.	1 Curry-comb and brush.
1 Dung fork.	1 Hair horse brush or duster.
1 Feather duster.	1 Chamois skin.
3 Boxes salve.	1 Clipping machine.
1 Surcingle.	400 Lbs. feed.
1 Cart harness.	2 Clothes-bars for blankets.
6 Fly nets.	1 Step ladder.
2 Robes, poor.	2 4-quart measures.
2 Scoops.	5 Rubber horse covers.
1 Feed bin.	1 Broken whip.
1 Trough for mixing feed.	1 Long cobweb broom.
1 Wagon jack.	36 Axle washers.

IN LEAD ROOM.

33 Pigs of lead, 3125 lbs.	5 Long malleable spanners.
6 New snow shovels.	219 Lbs. old lead joints.
4 Old snow shovels.	216 Lbs. scrap brass.
6 Ludlow hydrant stems and valves, complete.	28 Lbs. old lead pipe scrap.
6 Hayes hydrant stems and valves, complete.	136 Feet new 1-inch rope.
62 Old hydrant caps, brass.	126 Feet new $\frac{5}{8}$ -inch rope.
	100 Feet new $\frac{3}{4}$ -inch rope.

PIPE IN YARD AT UPPER ENGINE HOUSE.

8 Pieces 36-inch pipe, 12 feet long.	2 Pieces 24-inch pipe, 8 feet long, plain.
1 Piece 36-inch pipe, $4\frac{1}{2}$ feet long, plain.	1 Piece 30 inch pipe, 12 feet long.
1 Piece 36-inch pipe, 3 feet long, hub.	1 Piece 30-inch pipe, $4\frac{1}{2}$ feet long, plain.
2 Pieces 36-inch pipe, 5 feet long, plain.	2 Pieces 20-inch pipe, $2\frac{1}{2}$ feet long, plain.

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| 1 Piece 36 inch pipe, 4 feet long, plain. | 1 Piece 20-inch pipe, 2 feet long, plain. |
| 1 Piece 36 inch pipe, 3 feet long, plain. | 1 Piece 16-inch pipe, 2½ feet long, plain. |
| 4 Pieces 24-inch pipe, 12 feet long. | 1 piece 10-inch pipe, 4½ feet long, plain, |
| 1 20-inch ¼ bend. | 2 36-inch sleeves. |

UPPER ENGINE HOUSE.

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| 1 Rotary engine. | 2 Span steel wrenches. |
| 1 Geared engine. | 6 Iron socket wrenches. |
| 1 Direct acting engine. | 2 Large iron wrenches, two-ended. |
| 1 Knowles steam air-pump. | 5 Large iron wrenches, one-ended. |
| 1 Holly feed pump. | 1 Steel hammer. |
| 2 Iron boilers, 6x14 feet, flue and return tubular. | 2 Copper hammers. |
| 4 Steam gauges. | 5 Cold chisels. |
| 2 Vacuum gauges. | 13 Odd chisels. |
| 2 Register gauges. | 1 Vise. |
| 2 12-inch screw-wrenches. | 3 Good scoops. |
| 1 20-inch screw-wrench. | 2 Old scoops. |
| 1 Large key. | 1 Pair dividers. |
| 18 Small iron wrenches. | 8 eye-bolts. |
| 1 6-inch steam whistle. | 2 Packing hooks. |
| 1 Pair snips. | 1 Tire hoe. |
| 2 Calking tools. | 3 Flue scrapers. |
| 6 Drills. | 1 Hydrant wrench. |
| 1 Pawl wrench. | 1 Iron coal car. |
| 1 Nut jack. | 6 Single gas burners in cellar. |
| 1 Reamer. | 1 Iron top wheelbarrow. |
| 3 Flat files. | 2 Thermometers. |
| 4 Half round files. | 1 Ship scraper. |
| 2 Round files. | |

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| 6 Old odd files. | 4 Hand-lamps. |
| 2 Pairs pipe tongs. | 4 Globe lanterns. |
| 3 Steel drift kegs. | 10 Sheets tin. |
| 1 Old anvil. | 1 Marline spike. |
| 1 Small swivel. | 1 Large diamond heating stove, No. 36. |
| 1 Map. | 19 Lengths stove pipe. |
| 2 Framed regulation cards. | 1 Elbow. |
| 1 Map showing elevation from pumping house. | 1 Zinc for stove. |
| 1 Log book. | 2 New slates. |
| 1 $\frac{1}{2}$ -gallon oil can. | 1 Old slate. |
| 1 1-gallon oil can. | 1 Clock. |
| 2 10-gallon oil cans. | 1 Ink bottle. |
| 1 1-gallon tin pail. | 3 Spittoons. |
| 2 Spout oil cans. | 1 5-inch line, 500 feet long. |
| 2 Squirt oil cans. | 1 New sea grass line. |
| 1 Quart oil filler. | 1 Good chair. |
| 1 50-gallon oil tank. | 1 Old chair. |
| 1 Small platform scales. | 1 Rubber belt, 54 ft. long, 8 in. wide. |
| 1 Letter box. | 22 Lbs. 1-inch round rubber packing. |
| 1 Iron ladder. | 13 Lbs. 1-inch round Empire packing. |
| 3 Wooden ladders. | 17 Lbs. $\frac{7}{8}$ -inch rubber packing. |
| 4 Step ladders. | 4 Lbs. $\frac{1}{2}$ -inch square rubber packing. |
| 2 Snow shovels. | 2 Lbs. $\frac{1}{4}$ -inch round soapstone packing. |
| 1 Oil stone. | 4 Lbs. $\frac{3}{4}$ -inch round Empire packing. |
| 4 Water drip pans. | 24 Lbs. $1\frac{1}{8}$ -inch square canvas packing. |
| 1 Table. | |
| 1 Dust pan. | |
| 4 Water pails. | |
| 2 Scrub brooms. | |
| 2 Corn brooms. | |
| 75 Ft. rubber hose, and nozzle. | |
| 1 Reducer. | |
| 32 Brass stems. | |

- 30 Valve seat bolts.
- 1 Air-pump valve.
- 1 New pair brass boxes, 23 lbs.
- 50 Gallons cylinder oil.
- 12 Gallons machinery oil.
- 20 Lbs. Tallow.
- 10 New rubber valves.
- 31 Rubber valves, faced.
- 25 Old valves.
- 2 $\frac{1}{4}$ -inch check valves.
- 1 $\frac{1}{2}$ -inch angle globe valve.
- 19 Extra valve seats.
- 6 Extra valve weights.
- 2 Boxes universal metal, Putz pomade.
- 3 New springs for feed pumps.
- 1 9-inch copper gasket.
- 1 Old relief pipe and valve.
- 1 Old wooden wheel, iron rim.
- 475 Feet old 5-inch rope.
- 242 Lbs. old brass.
- 15 Lbs. old copper.
- 300 Lbs. old scrap iron.
- 6 Lbs. washer leather.
- 2 Extra hose clamps.
- 1 Soft soap barrel.
- 8 Lbs. $\frac{1}{2}$ and $\frac{3}{8}$ -inch rivets.
- 9 Old Tupper grate bars.
- 29 Lbs. usudorian scrap.
- 1 Shaft, 2 $\frac{1}{2}$ inches in diameter and 14 feet long.
- 1 Shaft, 2 $\frac{1}{2}$ inches in diameter and 20 feet long.
- 8 Rubber hand-hole gaskets.
- 4 Lbs. plumbago.
- 1 Glass water gauge, 15 inches long.
- 1 Pair cross-head gibbs.
- 1 Iron flue plug.
- 1 Ball cotton twine.
- 3 Old brass faucets.
- 21 Old brass thimbles.
- 6 $\frac{5}{8}$ -inch bolts 4 inches long.
- 25 $\frac{3}{4}$ -inch bolts 5 $\frac{1}{2}$ inches long.
- 1 5-inch blind joint.
- 18 Old oil cup feeders.
- 1 Lubricator, extra.
- 4 Hand-hole plates and crabs.
- 107 Old valve seats.
- 1 Pulley, 8-inch face, 4 feet in diameter.
- 1 Pulley, 8-inch face, 3 feet in diameter.
- 1 Pulley, 8-inch face, 2 feet in diameter.
- 7 Journals for same.
- 1 Drum, 2 feet in diameter, 4 feet long.
- 1 Old leather belt, 8 inches wide, 50 feet long.
- 1 Good leather belt, 6 inches wide, 24 feet long.
- 6 Double gas burners in engine room.
- 3 Single gas burners in en-

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| 1 Shaft, 2½ inches in diameter
and 11½ feet long. | gine room. |
| 1 Pulley, 6-inch face, 3 feet in
diameter. | 3 Single gas burners in
room. |

HOLLY HOUSE SHED.

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| 1 Old Shepard fire-engine, com-
plete. | 2 Rakes. |
| 21 Feet old suction hose. | 1500 Lbs. soft coal. |
| 50 Feet old leather hose. | 12 Feet stone flagging, 3 ft. |
| | 200 Brick. |

LOWER ENGINE HOUSE.

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| No. 1 Worthington engine,
10,000,000 gals. capacity. | 2 Iron boilers, 8x18½
flue and return tubula |
| No. 2 Worthington engine,
15,000,000 gals. capacity. | 1 Iron boiler, 9x16 feet
and return tubular. |
| No. 3 Worthington engine,
15,000,000 gals. capacity. | 3 Cylinder boilers, 5½
feet, return tubular. |
| No. 4, Shepard engine, 9,-
000,000 gallons capacity. | 1 Hoisting engine, com
10x14-inch. |
| 1 Worthington pump boiler
feed, 9x16-inch. | 1 Whistle. |
| 1 Worthington pump boiler
feed, 6x6-inch. | 1 Gong. |
| 1 Blake pump boiler feed, 8x
10-inch. | 1 Edison recording and a
gauge. |
| 1 Blake pump boiler feed, 6x
10-inch. | 16 Steam gauges. |
| 1 Blake pump in cellar No. 1,
10x14-inch. | 5 Water pressure gauges. |
| 1 Blake pump in cellar No. 2,
14x18-inch. | 4 Vacuum gauges. |
| | 4 Register gauges. |
| | 2 Stocks, gas dies and l
ings, ¼ to 1-inch. |
| | 1 Stock and dies, ¼ to
inch. |

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| 2 Steel boilers, 8x18 feet, flue and return tubular. | 1 Stock and dies, $\frac{1}{4}$ to 2-inch. |
| 2 $\frac{1}{4}$ -inch taps. | 3 Tap wrenches. |
| 3 $\frac{3}{8}$ -inch taps. | 1 Hand reamer. |
| 5 $\frac{1}{2}$ -inch taps. | 2 Steel hammers. |
| 5 $\frac{3}{4}$ -inch taps. | 2 Copper hammers. |
| 5 1-inch taps. | 2 Calking hammers. |
| 2 $1\frac{1}{2}$ -inch taps. | 2 Flagging hammers. |
| 1 $\frac{9}{16}$ -inch tap. | 1 Sledge, 16 lbs. |
| 3 $\frac{5}{8}$ inch taps. | 24 Lbs. cold chisels. |
| 4 $\frac{7}{8}$ -inch taps. | 20 Lbs. calking tools. |
| 3 $1\frac{1}{8}$ -inch taps. | 7 Flat files. |
| 1 Stock plate, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$ -in. | 4 Half round files. |
| 1 Machine reamer, 1-inch. | 1 Square file. |
| 1 Machine reamer, $\frac{3}{4}$ -inch. | 1 Pair snippers. |
| 4 Small frames. | 3 Small breast drills. |
| 1 Lath chuck. | 6 Packing hooks. |
| 5 Monkey-wrenches. | 1 Packing screw. |
| 2 Baxter wrenches. | 1 Soldering iron. |
| 3 Chain tong wrenches. | 2 Lead ladles. |
| 18 Single-end wrenches, iron and steel. | 48 Socket wrenches, |
| 17 S double-end wrenches, iron and steel. | 7 Socket S wrenches. |
| 7 Box wrenches, iron and steel. | 1 Fork wrench. |
| 3 Alligator wrenches, iron and steel. | 1 Endless chain fall. |
| 7 Double-end wrenches, iron and steel. | 2 Jack-screws. |
| 2 Pairs calipers. | 2 Box key wrenches. |
| 1 Pipe vise. | 2 Flue scrapers. |
| 2 Bench vises. | 5 Fire hoes. |
| 7 Extension tongs. | 2 Slice bars. |
| 3 Stilson tongs. | 1 Slice hook. |
| 18 | 3 Scoops. |
| | 2 Platform scales. |
| | 1 Counter platform scales. |
| | 3 Iron wheelbarrows. |
| | 3 Iron-box wheelbarrows. |

3 Pipe tongs.	75 Feet $1\frac{1}{4}$ -in. rubber hose
2 Pipe cutters.	good.
2 Chisel bars.	50 Feet 3-in. rubber hose, ol
1 Crowbar.	1 Hose reel.
1 Key wrench.	2 Hose nozzles.
1 Drill brace.	2 Cast iron clamps.
2 Drill straps.	1 Wrought iron clamp.
7 Boiler scrapers.	4 Angle-iron clamps.
2 Ship scrapers.	2 Paint brushes.
3 Punches.	1 Whitewash brush.
1 Pair pliers.	1 Soap tank.
2 Head-lights.	1 Case knife.
7 Globe lamps.	2 Marlinspikes.
5 Hand lamps.	1 Saw-clamp, wood.
1 Bull's-eye lamp.	2 Mortar hoes.
5 Lamp chimneys.	3 Wooden buckets.
11 Lamp wicks.	152 Lbs. 5-inch rope, old.
18 Balls cotton wick.	170 Lbs. 4-inch rope, good.
2 Drinking cups.	90 Lbs. 2-inch rope, old.
1 Sprinkling pot.	80 Lbs. 3-inch rope, old.
1 Gas burner.	174 Lbs. $\frac{3}{4}$ -inch chain.
3 Hoes.	12 Lbs. $\frac{1}{2}$ -inch chain.
6 Hand Scrapers.	52 Lbs. $\frac{5}{8}$ -inch chain.
2 Twist drills.	160 Lbs. 1-inch chain.
3 Gasket cutters.	1 $\frac{1}{2}$ -gallon measure, tin.
9 Stamping figures.	1 $\frac{1}{4}$ -gallon measure, tin.
1 Universal lath chuck.	1 $\frac{1}{8}$ -gallon measure, tin.
3 Axes.	1 $\frac{1}{4}$ -gallon measure, brass.
5 Augers.	2 $\frac{1}{4}$ -gallon measures, co
3 Hand-saws.	per.
1 Cross-cut saw.	26 Brass drip pans.
1 Adz.	1 Brass tray.
1 2-foot square.	1 Tin tray.
1 Spirit level.	1 Oil tank, 50 gallons.

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| 1 Brace. | 1 Oil tank, 150 gallons, |
| 4 Bits. | 1 Reservoir and pump, |
| 2 Screw-drivers. | 1 Diver's air-pump. |
| 1 Drawing knife. | 1 Diver's chest. |
| 1 Jack plane. | 1 Diver's armor, old. |
| 2 Oil stones. | 1 Wash sink and bowl. |
| 3 Wood chisels. | 2 Water closets. |
| 1 Plumb. | 1 Urinal. |
| 2 Trowels. | 3 Clothes closets. |
| 5 Galvanized iron buckets. | 1 Cupboard with drawers. |
| 5 Wooden rollers. | 1 Desk cupboard. |
| 2 Step ladders. | 1 Desk. |
| 2 Double scaffold ladders. | 2 Chairs. |
| 4 Ladders, 16, 12, 10, and 9-ft.
long. | 3 Crown stoves, No. 18. |
| 2 Sets blocks and tackle. | 20 Feet 6-inch stove pipe. |
| 4 Snatch blocks. | 1 Chart table. |
| 5 Double blocks. | 2 Double slates. |
| 2 Scaffold hangers. | 2 Mercury columns. |
| 5 Rope slings. | 2 Thermometers. |
| 130 Lbs. 4-inch rope. | 2 Levers for Bird Island valve. |
| 1 Tape line. | 1 Telephone and battery. |
| 1 Pair dividers. | 1 Red lantern. |

BLACKSMITH SHOP.

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| 1 Large lead pot. | 1 Anvil. |
| 8 Cast iron ash pit doors. | 1 Forge. |
| 2 Safety ball weights. | 2 Sledges. |
| 2 Bushels charcoal. | 1 Hammer. |
| 36 Pounds $\frac{1}{4}$ -inch round iron. | 2 Cutting tools. |
| 64 Pounds $\frac{7}{8}$ -inch round iron. | 3 Pairs tongs. |
| 1 Stock vise. | 2 Flatters. |
| 1 Pair bellows. | 3 Swedges. |
| 3 Fullers. | 2 Empty barrels. |

- 2 Setting-down tools.
- 5 Punches and handles
- 1 W. W. Brand.
- 2 Chisels and handles.
- 10 Flat files, old.
- 4 Square files, old.
- 2 Half-round files, old.
- 2 Flat files, new.
- 1 Half round file, new.
- 3 Anvil tools.
- 6 Cape chisels.
- 5 Flat chisels.
- 1 Grindstone.
- 141 Lbs. octagon steel.
- 21 Lbs. $\frac{7}{8}$ -in. square steel.
- 108 Lbs. $1\frac{1}{4} \times \frac{7}{8}$ -in. steel.
- 500 Lbs. Blosburg coal.
- 1 Squirt can.
- 5 Cast iron boiler legs.
- 5 Gallons kerosene oil.
- 12 Gallons crude oil.
- 2 Boxes lye.
- 1 Corn broom.
- 3 Lbs. soapstone.
- 1 New scoop.
- 1 Wheelbarrow handle.
- 2 Brasses.
- 2 Unions.
- 2 $\frac{3}{4}$ -inch globe valves.
- 2 $\frac{1}{2}$ -inch globe valves.
- 1 $1\frac{1}{4}$ -inch globe valve.
- 1 $1\frac{1}{2}$ -inch check valve.
- 4 Hammer handles.
- 2 Lbs. W. I. nails.
- 1 Old stop wrench.
- 1 Old 3-gallon iron pail.
- 4 Grate legs, 100 lbs.
- 1 $\frac{5}{8}$ -in. chain, 25 lbs.
- 1 $\frac{1}{2}$ -in. chain, 45 lbs.
- 1 3-in. 4-nipple flange.
- 1 Old casting, 100 lbs.
- 1 6-in. pipe plug.
- 1 6 in. pipe sleeve.
- 4 Wooden rollers.
- 6 Window weights.
- 12 Feet of 6-in. pipe, C. I.
- 1 Stop key-wrench.
- 1 Old tin oil tank.
- 3 Plugs, 3, 4 and 9-in.
- 1 $2\frac{3}{4}$ in. C. I. socket wren
- 2 1-in box wrenches.
- 1 2-in. S single-end wrench
- 1 2x3-in. S wrench.
- 1 Iron pot.
- $\frac{3}{4}$ Cords kindling wood.
- 2 Wire nets.
- 2 Old copper flanges.
- 5 Blind joints.
- 1 Column gauge.
- 1 Wooden mallet.
- 46 Lbs. rubber valves.
- 5 Lbs. rubber valves for fe
pump.
- 2 Lbs. rubber washers.
- 25 Lbs. rubber buffers, new.
- 29 Lbs. rubber buffers, old.
- 12 Lbs. rubber sheet, 2-ply.
- 18 Lbs. rubber sheet, 3-ply.

- 22 Lbs. mineral paint.
- 10 Lbs. red lead.
- 5 Lbs. glue.
- 12 Sheets emery cloth.
- 6 Lbs. annealed iron wire.
- 2 Lbs. copper wire.
- 3 Old scoops.
- 3 Snow shovels.
- 4 New wheelbarrows.
- 3 New wheelbarrow hubs.
- 4 Maps.
- 2 Valve stems, No. 2 Worthington.
- 16 Sheets tin.
- 4 Lbs. $1\frac{1}{4}$ -in round packing.
- 2 Lbs. $\frac{1}{2}$ -in. round packing.
- 6 Lbs. $\frac{5}{8}$ -in. square packing.
- 9 Lbs. $\frac{7}{8}$ -in. square packing.
- 6 Lbs. 1-in. Eagle packing.
- 11 Lbs. asbestos paper.
- 4 $\frac{1}{2}$ Lbs. brass follower bolts.
- 1 100-foot galvanized cable.
- 3 Steam gauge glasses.
- 1 Bbl. salt.
- 1 Bbl. fire clay.
- 150 Fire brick.
- 30 Lbs. copper.
- 40 Lbs. pig lead.
- 60 Lbs. 8-in. iron flanges.
- 460 Lbs. iron weight, air-pump.
- 232 Lbs. iron valve weights.
- 2 Street valve stems.
- 1 16-in. brass valve stem.
- 1 16-in. iron valve stem.
- 9 Lbs. usudorian.
- 29 Lbs. usudorian scrap.
- 51 Lbs. pump head joints.
- 11 Hand-hole gaskets.
- 20 Lbs. man-hole gaskets.
- 27 Lbs. rubber valves.
- 30 Lbs. hemp packing.
- 80 Lbs. rubber valves.
- $\frac{1}{2}$ Bbl. of McCutcheon's compound.
- $\frac{1}{2}$ Bbl. English compound.
- 12 Lbs. $1\frac{1}{4}$ -inch Martin pack'g
- 10 Lbs. $\frac{7}{8}$ -inch cotton packing.
- 1 Lb $\frac{7}{8}$ -inch asbestos pack'g.
- 5 Carrier bars.
- 3 Carrier tongs.
- 5 Carrier hangers.
- 5 Carrier pulleys.
- 2 Carrier wooden legs.
- 2 Old screen tunnels.
- 2 New screen tunnels.
- 1 Trap pot, old.
- 1 Set Rogers grates.
- 1 Tunnel frame and gate.
- 1 36-in. Ludlow valve.
- 3 Rules and regulations.
- 1 Hoist wrench.
- 1 Rice cast iron pipe, 6-in. x 6 ft.
- 6 Engine clamps.
- 55 Lbs. brass plungers.
- 2 3-lb. Check valves, old.
- 6 Lengths 8-in. tile.
- 20 Feet rubber belting.
- 2 Window sashes.

11 Wheelbarrows.	1 Connecting rod.
127 Lbs. scrap bolts.	1 Pulley, 18x8-in.
80 Lbs. scrap nuts.	3 Door hangers.
10 R. bolts.	1 Cauldron yoke.
30 Lbs. hand-hole bolts, old.	1 Pinch bar.
20 Lbs. hand-hole bolts, crabs.	2 Bolts 2-in.x12 ft.
25 Lbs. hand-hole bolts, plates.	4 Iron bevel flanges, 13-in.
1 Boat, scull oar.	52 Lbs. 1½-in. square steel.
11 Pieces 7-in. stove-pipe, old.	1 Engine link.
3 Iron endless blocks.	3 Coal buckets.
1 Portable furnace.	6 Oil barrels.
16 Grate bars.	1 6-in. cast iron flange.
7 Lengths 6-in. stove-pipe, new.	2 5-in. cast iron flanges.
25 Old oil cups.	2 Cast plungers.
6 Lbs. borax.	1000 Lbs. scrap iron.
116 Lbs. old brass cups.	2 Old stuffing boxes.
18 Lbs. wrought iron rings.	2 Extra walking beams.
1 Large key drift.	1 Extra shaft.
2 Screw hooks, 5 feet long.	1 Extra valve head.
1 1-gallon tin can, old.	1 Extra piston, complete.
1 3-gallon tin can, old.	1 Extra valve chest.
1 4-gallon tin can, old.	1 Extra air compressor, com plete.
1 5-gallon tin can, old.	11 ¼-in. unions.
1 ½-gallon tin can, old.	2 ¼-in. wall ells.
1 Filler tin can.	1 ¼-in. valve, old.
1 Tin rat trap.	38 ⅜-in. tees.
1 Tin oil-pump.	18 ⅜-in. ells.
3 Wood blocks for followers.	1 ⅜-in. union.
7 Gallons boiled oil.	2 ⅜-in. plugs.
13 Gallons lard oil.	5 ½-in. tees.
34 Gallons cylinder oil.	17 ½-in. ells.
5 Gallons kerosene oil.	11 ½-in. plugs.
50 Gas jets.	19 ¾-in. sockets.

7 $\frac{3}{4}$ -in. ells.	4 $1\frac{1}{2}$ -inch sockets.
4 $\frac{3}{4}$ -inch unions.	2 $2\frac{1}{2}$ -inch ells.
5 $\frac{3}{4}$ -inch tees.	1 $1\frac{1}{2}$ -inch union.
6 $\frac{3}{4}$ -inch plugs.	2 $1\frac{1}{2}$ -inch flanges.
2 $\frac{3}{4}$ -inch gam nuts.	2 $1\frac{1}{2} \times \frac{1}{2}$ -inch reducers.
22 1-inch sockets.	4 $1\frac{1}{2}$ -inch plugs.
2 1-inch oval flanges.	4 $1\frac{1}{2}$ -inch tees.
1 1-inch ell.	1 $1\frac{1}{2} \times \frac{3}{8}$ -inch plug.
2 1-inch tees.	1 $1\frac{1}{2} \times \frac{1}{4}$ -inch cap.
1 $1 \times \frac{3}{4}$ -inch ell.	1 $2\frac{1}{2} \times 3$ -inch ell.
3 $1 \times \frac{3}{4}$ -inch tees.	1 $2\frac{1}{2} \times 3$ -inch reducer.
2 $1 \times \frac{1}{2}$ -inch tees.	3 $2\frac{1}{2}$ -inch ells.
3 3-inch short nipples.	4 $2\frac{1}{2}$ -inch plugs.
4 1-inch plugs.	1 $2\frac{1}{2} \times \frac{1}{2}$ -inch reducer.
1 $1\frac{1}{4} \times \frac{1}{4}$ -inch plug.	4 $2\frac{1}{2}$ -inch nipples.
12 $1\frac{1}{4}$ -inch sockets.	4 $2\frac{1}{2}$ -inch sockets.
11 $1\frac{1}{4}$ -inch nipples.	1 2-inch reducer.
2 $1\frac{1}{4} \times 1$ -inch ells.	4 $2\frac{1}{2}$ -inch sockets.
5 $1\frac{1}{4}$ -inch ells.	4 $2\frac{1}{2}$ -inch plugs.
1 $1\frac{1}{4}$ -inch tee.	3 $2\frac{1}{2}$ -inch ells.
1 $1\frac{1}{4} \times 1\frac{1}{2}$ -inch tee.	2 $2\frac{1}{2} \times 2$ -inch reducers.
2 $1\frac{1}{4}$ -inch flanges.	3 $2\frac{1}{2}$ -inch short nipples.
3 $1\frac{1}{4}$ -inch unions.	1 $2 \times \frac{3}{4}$ -inch ell.
1 $1\frac{1}{4}$ -in return ell.	4 2-inch unions.
2 $1\frac{1}{4}$ -inch crosses.	1 2-inch flange.
6 $1\frac{1}{4}$ -inch plugs.	2 2-inch reducers, in and out.
2 $1\frac{1}{4}$ -inch gam nuts.	6 2-inch plugs.
5 $1\frac{1}{2}$ -inch nipples.	3 Pieces 6-inch pipe, 18 feet.
2 $2 \times \frac{3}{4}$ -inch tees.	2 Pieces $1\frac{1}{2}$ -inch pipe, 29 feet.
1 $2 \times 1\frac{1}{4}$ -inch tee.	3 Pieces $1\frac{1}{4}$ -inch pipe, 29 feet.
1 $2 \times 1\frac{1}{2}$ -inch socket.	6 Pieces 3-inch pipe, 30 feet.
1 2-inch nipple.	3 Pieces $\frac{3}{4}$ -inch pipe, 28 feet.
2 $3\frac{1}{4}$ -inch angle ells.	1 Piece $\frac{3}{8}$ inch pipe, 14 feet.
2 $3 \times 1\frac{1}{4}$ -inch reducers.	

- | | |
|------------------------------------|---|
| 2 3-inch nipples. | 1 Piece $\frac{1}{4}$ -inch pipe, 8 feet. |
| 2 3x1 $\frac{1}{4}$ -inch tees. | 3 Pieces 8-inch pipe, 14 inches. |
| 3 3-inch plugs. | 4 Pieces 3-inch pipe, 4 inches. |
| 1 3x1 $\frac{1}{2}$ -inch reducer. | 1 Piece 6-inch pipe, 4 inches. |
| 4 3x2-inch reducers. | 2 6-inch caps. |
| 1 3-inch tee. | 1 5-inch ell. |
| 1 3x2 $\frac{1}{2}$ -inch ell. | 1 4-inch ell. |
| 1 3x2-inch reducer. | 1 8-inch plug. |
| 14 Pieces 2-inch pipe, 103 feet. | 1 4-inch plug valve. |
| 4 Pieces 8-inch pipe, 36 feet. | 2 5-inch sleeves. |
| 60 Lbs. rubber scrap. | |

*CHAPTER XXXII OF THE ORDINANCES OF THE
CITY OF BUFFALO.*

OF THE WATER WORKS—IN RELATION TO CONSUMERS.

§ 11. The introduction of service pipe for the supply of premises with water, and all plumbing of every description, must be done by plumbers licensed by the Mayor, and who shall be under bonds to the City for the faithful performance of their work in accordance with the ordinance in relation to plumbing, in connection with the Buffalo City Water Works.

§ 12. All applications for the introduction of water into any premises, or for the extension of any pipe for the conveyance of such water, shall be made in the handwriting of the applicant, and with the written consent of the owner, and must state fully and truly all purposes for which it is required, and when paying the semi-annual charges for it, must frankly and without concealment, answer all questions put to them relating to its consumption.

§ 13. No owner or tenant of any premises supplied with water by the works will be allowed to supply water to other persons or families; if found so doing the supply will be stopped, and the amount of payment forfeited.

§ 14. No addition or alteration whatever, in or about public or private pipe, shall be made by any person, without permission first had in writing from the Superintendent.

§ 15. All lateral or service pipe, for public or private use, shall be of lead or iron, and all necessary fixtures connected therewith shall be subject to the approval of and laid under the supervision of the Superintendent; said pipes, etc., are to be laid and kept in good repair, and protected from frost, by and at the expense of the applicant, who shall likewise pay for tapping the main pipe and the cost of service cock inserted therein, such payments to be made by the person making application for a supply of water at the time such application is made, and where more than one building, or

tenant, is supplied through one service pipe, the application for the supply of such buildings or tenants shall be made by one person, and the bill for the supply of water shall be made to said person, covering all supplies through said service pipe.

§ 16. In case of fraudulent misrepresentation on the part of the applicant, or of uses of the water not embraced in the application or bill, or of willful or unreasonable waste of water, the Commissioners reserve the right to forfeit the payment, and cut off the supply, immediately upon the discovery of such fraudulent use or waste of water, unless the party shall promptly pay such penalty as the Commissioners may impose.

§ 17. Street washers must not be permitted to run to waste, or leak, or be converted into jets, or be used for washing down the collection of the gutters upon the neighboring premises, and no hydrant will be permitted upon the sidewalk, or in the front area, and if standing in a yard or alley attached to any dwelling, will not be permitted to run when not in actual use; taps or sinks, wash basins, water closets, baths, urinals, etc., must be kept closed in like manner.

§ 18. No yard fountain or jet shall be used longer than three hours each day, without a special permit for that purpose from the Superintendent.

§ 19. The Superintendent personally, and any person delegated by him for the purpose, must have free access to all parts of the premises to which the water is delivered, for the purpose of inspection, examination of fixtures, etc.

§ 20. All water bills are payable semi-annually in advance, on the first day of May and November, or within ten days thereafter, and no deduction can be made from any bill for supply of water for street washers, baths, water closets, urinals, or other fixtures for which special rates are paid, unless such fixtures are discontinued or cut off from the supply or service pipe supplying the premises; and if not paid within the prescribed time the water will be

turned off from the premises; and when turned off for non-payment, the sum of one dollar will be added to the bill for renewing the supply. All bills for fractions of regular terms shall be payable in advance for the balance of the term.

§ 21. Notice must be given at the office of the works of any change of occupants in premises supplied with water; and the balance of a bill paid in advance may be transferred on such notice to other premises, but no balance of a bill shall be refunded.

§ 22. Where leaks occur on service pipes, at any point beyond the main pipe, they must be immediately repaired by the owner or occupant of the premises; and if not repaired within a reasonable time after notice, the Superintendent shall cause same to be shut off until repaired, and charge the expense against the premises, to be collected with the first bill for supply of water that shall become due against said premises.

TABLE OF ANNUAL RATES.

DWELLINGS.

Front Width of Building.	Stories in Height.						
	1	1½	2	2½	3	4	5
Under 25 feet.....	\$ 4 50	\$ 5 40	\$ 7 20	\$ 8 10	\$ 9 00	\$10 80	\$12 60
From 25 to 30 feet.....	6 30	7 80	9 00	9 90	10 80	12 60	14 40
From 30 to 35 feet.....	8 10	9 60	10 80	11 70	12 60	14 40	16 60
From 35 to 40 feet.....	9 90	11 40	12 60	13 50	14 40	16 20	18 00
From 40 to 45 feet.....	12 60	14 40	15 30	16 20	17 10	18 90	20 70
From 45 to 50 feet.....	15 30	16 80	18 00	18 90	19 80	21 60	23 40

MISCELLANEOUS OR EXTRA RATES.

Dwellings occupied by more than one family subject to special rates

Bathing tubs, private houses, hot and cold water, one tub.....

\$3 00

Each additional tub.....

1 80

Cold water only, one tub.....

2 40

Each additional tub.....	\$1 20
All others.....	\$4 00 to 5 34
Stores, other than grocery, provision, liquor, etc...	5 34 to 20 00
Grocery, provision, liquor, drug, etc.....	6 67 to 23 34
Saloons, bars, billiard saloons, restaurants, etc	8 34 to 43 34
Water closets, private houses, one closet.....	3 00 to 4 20
Each additional closet.....	1 50 to 3 00
All others.....	4 00 and up.
Water or hopper closets, supplied by ordinary faucets or drawcocks, not allowed.	
Urinals, from.....	4 00 and up.
Hotels, taverns and boarding houses, subject to special rates.	
Street washers, on sidewalks, under thirty feet front of lot.....	1 80
Corner lots, and up to sixty feet front.....	3 60
Over sixty feet, subject to special rates.	
Urinals, private houses.....	3 00
When used for gardens or yards, subject to special rates.	
All plain bibs, where hose is attached and hose bibs, charged as street washers.	
Stables, private stables, first two stalls, each.....	2 40
Each additional stall.....	1 50
Livery stables, for each stall up to thirty	1 67
Each additional stall.....	1 00
Stables for cart and other work horses, and for cows, each stall.....	90
Bakeries, for each barrel of flour used daily, \$3.34 per annum, with additional charge for steam engines	
Printing offices, book binderies, workshops, warehouses, etc., subject to special rates.	
Building purposes, laying stone, cord	8

THE BUFFALO CITY WATER WORKS.

175

Brick, per thousand.....	\$	5
2 coats plastering, each, per one hundred square yards.....		15
3 coats plastering, each, per one hundred square yards.....		20
Steam engine, each horse-power.....	2	00
With additional charge for manufacturing, use of men, etc., subject to special rates.		
Ambrotype and photograph galleries.....	\$5	34 10 10 00
Breweries, distilleries, rectifiers, etc., subject to special rates, or by meter measurement.		
All supplies not enumerated, subject to special rates.		
Beer motors.....		15 00
Meter rates to manufactories and railroads, three cents per one thousand gallons.		
Hydraulic elevators, six cents per one thousand gallons.		

FRONTAGE TAX.

Improved property, ten cents per foot.
Unimproved property, five cents per foot.


The frontage tax on all property taking water is rebated from water bills.



Sixteenth Annual Report

Buffalo City Water Works

1884.

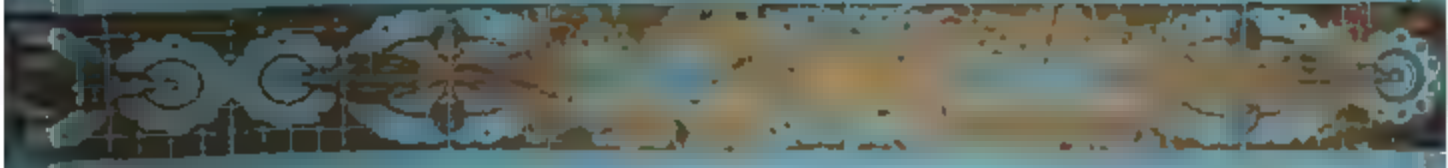




Sixteenth Annual Report

Buffalo City Water Works

1884.



SIXTEENTH ANNUAL REPORT

OF THE

BUFFALO CITY WATER WORKS

Compliments of the

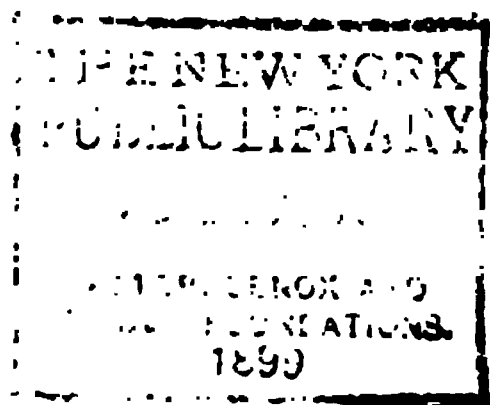
Buffalo Water Commissioners.

PLEASE EXCHANGE.

BUFFALO:

HAAS & KLEIN, City Printers, 126 Seneca St.

1884.



OFFICERS--1884.

Board of Water Commissioners.

LOUIS P. REICHERT, Chairman.

JAMES RYAN, Secretary.

GEORGE W. MILLER.

Superintendent,

LOUIS H. KNAPP,

Cashier,

G. C. GRIMARD.

Registrar,

JOHN T. REES.

Clerks,

JOHN SCANLON,

CHAS. H. BIEBER,

A. HOESTERMANN,

ROY CRANDALL.

Commissioners' Report.

To the Honorable the Common Council of the City of Buffalo:

GENTLEMEN: In compliance with title fifteen, section No. ten of the City Charter, we have the honor to herewith submit to you the Sixteenth Annual Report of the Buffalo City Water Works:

Mr. James N. Scatcherd resigned as a member of the Board on the 17th of March last.

The vacancy thus created was filled by Mayor Scoville by the appointment of George W. Miller, Esq.

In the presentation of this report the Board fully realized that to meet the requirements of our rapidly growing city so as to lay mains that all sections can be reached and supplied with Niagara water, the department will of necessity have to expend yearly large sums of money for laying new mains. While the department is fully able to meet the ordinary requirement and outlay for this purpose, in addition to paying running expenses and interest on bonds. We feel that the money to

make extraordinary or special extension, such as to the Poorhouse or Ganson street, where it required large expenditures of money without the department receiving scarcely any revenue, that the money necessary for these purposes should be provided by the City.

There was ordered by your honorable Body of this class of work during the year, four extensions, viz.:

Ganson street, 16-inch main.

Jefferson street, 16-inch main.

Broadway, 16-inch main.

Ferry street, 6-inch main.

To carry out this work, your Honorable Body appropriated \$66,700. These extensions were all made, the cost of which were kept under the amount appropriated.

The total requirement of the department for the year apart from making provisions to paying the bonds falling due was.

Interest on Water Bonds.....	\$182,101.74
Maintenance and repairs.....	81,078.88
Improvements and extensions.....	186,623.92
	<hr/>
Total.....	\$449,804.54
Total received for water and other sources	\$382,581.64
Appropriated for laying pipe in Ganson, Jefferson, Broadway and Ferry streets	66,700.00
	<hr/>
	\$449,281.64
Coal and supplies purchased during the year on hand January 1, 1885, which will be used in 1885 business.....	\$33,280.16

As will be seen by the above tables the department's revenue met all current expenses	\$ 81,078.88
Paid interest on bonds.....	182,101.74
And was able to apply towards the extension of new work.....	119,401.02
	<hr/>
Total	\$382,581.64

The expense of maintenance and repairs for the year is considerable less than for 1883, although the department has expended large amounts in renewing hydrants and valves. The cost of this work has all been included in the proper accounts, leaving no floating debt standing against the department for supplies or labor.

The works in all its departments are in thorough repair.

No serious breaks or accidents have occurred during the year, and no interruption to the water supply has taken place.

The Fire Hydrants are cared for by this department. We assume full charge and control of them.

A 16-inch main has been completed in Main street to the County Almshouse. This extension cost the department \$25,208.95 during the year. This, with the expense incurred on same extension during the previous year, makes the total cost of this work \$70,720.79.

The expenditure of this sum of money in the more thickly populated parts of the city would bring the department a yearly revenue of \$10,000, or over. The revenue from this extension is less than \$2,600.

The supply at the Almshouse is fully up to our expectations, although upon completion of the new engine it will be greatly improved.

A contract has been entered into between the Board of Supervisors and the Water Board for water for the Poorhouse for a term of three years, the compensation to be two thousand dollars per year.

WATER DEBT.

The water debt has been reduced during the year \$43,500, leaving the amount of debt January 1, 1885, \$2,828,382.

Bonds to the amount of \$91,000, bearing 7 per cent. interest, which became due during the year, have been refunded at a lower rate of interest. This is in accordance with our recommendation of a year ago. There will become due on July 1 next, bonds to the amount of \$100,000.

We would recommend that these bonds be refunded at a lower rate of interest.

The total amount received by the Water Department for the year ending December 31, 1884, was \$382,581.64. This is less than for the previous year, owing to the non-collection of the frontage tax.

The estimated loss to the department from this and the balance of rebate of 1883 tax made during May last is \$35,000. There was also a reduction of 10 per cent. in the rates to domestic consumers made May last. This reduction reduced our receipts estimated at \$20,000. This, with previous reduction of 33 1-3 per cent. makes a total reduction of 40 per cent. in domestic rates during the past three years, while rates to manufacturers are lower than in any other city in the United States.

We believe the enforcement of the collection of the frontage tax to be for the best interest of this department and our water takers, as it is the only way of reaching vacant lots and houses not taking water on line of streets where mains are laid; that this class of property should pay for the benefits derived. We would recommend that your Honorable Body direct the assessment of frontage tax as authorized by law.

In consideration of the benefits derived from this tax, we feel sanguine that it will so increase the number of consumers, and thereby our revenues, that we are war-

ranted in recommending a reduction approximating 10 per cent. in rates to domestic consumers, and we do so recommend.

WATER PIPE.

There was laid during the year 14 miles, 2,402 feet of water pipes of various sizes. Of this amount six miles, 2,242 feet was on the high service, and eight miles, 160 feet, on low service supply, making the total amount of pipe laid in the city 164 miles, 2931 feet.

The cost of laying water pipe during the year was 10 per cent. less than during 1883.

There was laid an unusual large quantity of large mains. The use of large mains will of necessity have to be continued.

We now have under contemplation the replacement of nearly all small mains in the central part of the city by larger ones. The present small mains that we propose to replace being a part of the old Water works system as purchased from the original company.

The demand for street mains for the coming year will be greatly increased through the action of the Board of Health in closing wells for sanitary purposes. We expect to lay twenty to twenty-five miles.

DRINKING FOUNTAINS AND HORSE TROUGHS.

The department has met the much needed requirements for public drinking fountains and horse troughs by placing during the year in various parts of the city, three fountains and ten horse troughs. We propose to follow with others during the coming year.

NEW PUMPING ENGINE.

The 15,000,000 gallon Gaskill engine, six boilers, chimney and foundations under contract with the Holly Manufacturing Company, Lockport, is not yet completed, although the work is being pushed as fast as possible, both at Lockport and at engine house. It is now thought the pump will be completed and set up by May next. This pump will be placed at lower pumping house. The old Shepard engine has been sold and removed to make room for it.

NEW COAL AND BOILER HOUSE.

During the year the much needed boiler house has been completed. The cost of this building was \$20,835.53. It can be so arranged that the coal can be received by canal or railroad.

THE ISLAND.

That portion of the city lying south of Buffalo River, known as The Island, now has complete fire protection, a 20-inch steel main having been laid under Buffalo River in July last to connect with the 16-inch main laid in Ganson street.

SERVICES.

There were put in during the year 3,524 taps. This is an increase of 814 over the previous year, the total number on January 1, 1885, being 19,537. This is an increase of 10,432 during the past four years.

DUMPING GROUNDS.

As in our report of last year, we renew our recommendation to have dredging from the harbor and garbage dumped in the river below the Inlet Pier.

The attention of your Honorable Body was called to this serious source of evil during the year 1882, and your Honorable Body immediately took steps to avoid the possibility of the water supply becoming contaminated by ordering all dredging matter dumped in the river below the Inlet Pier, and the same was done until stopped by the United States authorities in July, 1883.

since which time the old dumping grounds have been used. During the present winter the water supply has been unusually roily, owing to the open winter, no ice having formed in the harbor or lake so that during storms the wind has clear sweep down or across the lake, stirring up the filth deposited upon the reef or dumping grounds. This roily water is carried by the current much farther into the Niagara River than formerly, owing, as we think, to improvements made in the inner and outer harbor.

The depositing of garbage or dredging matter of any description must be made below the Inlet Pier.

We would recommend that your Honorable Body cause such action to be taken, requesting the members of Congress from this district to get the necessary authority from the Secretary of War as will allow the dumping to be made in the Niagara River below the city's water supply.

If necessary, a law should be passed to this effect at once.

The Board take pleasure in expressing their entire satisfaction and appreciation of the services rendered by the employes of the department. The result of their care, watchfulness and faithfulness to the department's interest is fully shown in reducing expenses in

all branches. For particulars in detail respecting the entire department we refer you to reports and tables furnished by Superintendent and Registrar.

All of which is most respectfully submitted.

LOUIS P. REICHERT,

JAMES RYAN,

GEORGE W. MILLER,

Water Commissioners.

REPORT
OF THE
SUPERINTENDENT
1884.

January 1, 1885.

*To Louis P. Reichert, James Ryan, George W. Miller,
Water Commissioners:*

GENTLEMEN. I have the honor herewith to present the annual report, showing the operation of the department during the year ending December 31, 1884.

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TUNNELS AND INLET PIER.

The time is fast approaching when it will become necessary to increase the size of the shaft at the Inlet Pier and Bird Island Pier; also to remove both of the bulkheads in the tunnel. When this is done, it will nearly double its capacity. When the present pumps are working full, the water in the wells is lowered three feet. When the new pumping engine is completed, it will still further reduce this level. No water has been taken from Bird Island Pier. The entire supply was obtained from the Inlet Pier in the centre of the river.

ENGINES AND BOILERS.

All of the Engines and Boilers are in good repair. The new Gaskill Engine is rapidly approaching completion, and when finished will fill a much needed want to the high service supply.

DISTRIBUTION.

There was laid during the year fourteen miles, 2,402 feet of cast iron pipe of various sizes at a cost of \$134,136.62, of which \$104,875.40 was on the East side and \$29,261.22 on the West side. Of the above three miles 3,459 feet was laid with money provided by special appropriation made by the Common Council. The remainder, ten miles, 4,223 feet, at a cost of \$84,308.69, was paid for out of the revenues of the department.

The total length of pipe laid in the City is one hundred and sixty-four miles, 2,931 feet.

The work of laying the pipe was done the same as last year; the average cost per cubic yard for excavating and refilling was 28 37-100 cts. This is 10 per cent. less than the previous year.

VALVES.

There was placed two hundred and twenty-two valves in the new mains during the year.

HYDRANTS.

There was located on line of new work one hundred and nine hydrants, and reset to replace old ones worn out, one hundred and nine hydrants.

The total number in use is 1,514; all the hydrants used being supplied with a six-inch pipe, and those in the business part of the City are provided with a four-inch opening for fire steamers suction and two 2 1-2 inch openings for hose attachments. The hydrants are all drained by having a 4-inch vitrified tile pipe leading from the waste of the hydrant to the nearest sewer.

Connections with the mains have been made to fifteen fire reservoirs, thus insuring an abundant water supply to these reservoirs for fire purposes in any emergency.

PUMPING.

The total amount of water raised was 8,789,971,200 gallons. This is an average daily consumption of 24,082,112 gallons or 120 gallons daily consumption per

capita, based on the population of the City being 200,000.

METERS.

There are 135 meters in use. The quantity of water supplied through them was 1,576,486,355 gallons. The revenue from which was \$49,467.12. The expense of maintaining the same was \$1,161.78.

SMALL MAINS.

In the territory bounded by Genesee, Exchange, Main and Michigan streets, many of the water mains are too small. Plans have been prepared to improve the supply of this district. The estimated cost of same is \$30,000.00. It provides for replacing all small mains by large ones in all streets running east and west, and 6-inch pipes in connection with these in streets running north and south.

RUNNING EXPENSES.

The amount expended during the year for maintenance and repairs was \$81,078.88. This is \$6,114.65 less than previous year and \$7,686.49 less than the estimated expenses provided for.

Each year demonstrates more plainly the need of the reservoir on the Dodge Farm. When constructed it will supply all the territory east of Jefferson street. The present reservoir can then be made to supply the Black Rock district and its dimensions for that will be ample. The high service can then be reduced to about ten miles; this being constant, no increase of engines will be necessary for that district, but to maintain the present ones.

For the future supply of the City, a plan should be adopted, which will meet the requirements of this rapidly growing City, so that the extensions and improvements made each year will be in conformity to it.

The detail reports will fully explain the operations of the department.

Respectfully submitted,

LOUIS H. KNAPP,

Superintendent.

OPERATIONS
OF THE
REGISTRAR'S DEPARTMENT
FOR
1884.

OFFICE NO. 1, CITY AND COUNTY HALL, }
BUFFALO, JANUARY 1, 1885. }

*To Louis P. Reichert, James Ryan, Geo. W. Miller,
Water Commissioners :*

GENTLEMEN: In compliance with the requirements of your Honorable Body, I have the honor to submit to you the following detailed report of the Water Registrar for the year ending December 31st, 1884. A general inspection was made during the year of all premises on streets where water mains are laid for the purpose of detecting any irregular supplies and the adjustment of rates to water consumers. The result of this inspection shows a net gain to the department of \$4,572.40.

Very Respectfully,

JOHN T. REES,

Registrar.

REVENUE.

The total revenue received from all sources was \$382,581.64
Following itemized statement shows source of revenue, viz.:

Water for City purposes.....	\$100,000.00
From Domestic Consumers and Manufacturers not metered	208,651.28
From Manufacturers and Railroads metered.....	48,024.30
From Flushing Sewers	213.27
From Street Sprinkling.....	1,302.24
From Circuses	25.00
From Street Paving.....	306.30
From Corporation Cocks.....	7,081.50
From Turn on Fees.....	137.00
From Tent on Dodge Farm.....	727.00
From Builders.....	1,340.08
*Premium on Water Bonds.....	5,000.00
	<hr/>
	\$372,807.97

SALE OF OLD MATERIAL.

D. Ullman.....	863 lbs. tarred shaking } .. \$ 6.75
	121 lbs. junk..... }
Buffalo Gas Co.....	3,631 lbs. old pipe..... 30.86
Jas. N. Scatcherd.....	880 lbs. marsh hay and ct'g 4.90
M. Lichtenstein.....	1,008 lbs. scrap iron..... 5.85
G. B. Hayes.....	26,158 lbs. scrap iron..... 175.16
Irlbacker & Davis....	660 lbs. scrap brass..... 59.40
S. Williams.....	old window frames..... 1.00
John Haiger.....	old Shepard engine..... 1,209.00
Geo. B. Hayes.....	11,756 lbs. scrap iron..... 78.72
Geo. B. Hayes.....	15,392 lbs. scrap iron..... 103.07

* Applicable to reduce bonds only.

A. D. Barber.....	184 ft. curbing.....	\$ 55.20
Geo. B. Hayes.....	11,830 lbs. scrap iron.....	79.21
W. C. McDonald.....	old buck board wagon ...	10.00
Geo. B. Hayes.....	16,912 lbs. scrap iron.....	113.20
Fries & Co.....	648 lbs. old brass.....	71.28
Geo. B. Hayes.....	16,110 lbs. scrap iron.....	107.88
Wm. Horning.....	50 lbs. scrap pipe.....	1.00
Geo. B. Hayes.....	14,190 lbs. scrap iron.....	95.00
M. Lichtenstein.....	380 lbs. waste gasket.....	1.90
Geo. B. Hayes.....	24,738 lbs. specials... ..	618.45
Cornell Lead Works..	3,600 lbs. lead skimings... ..	54.00
Cornell Lead Works..	1,048 lbs. lead skimings... ..	15.72
J. Binz.....	Colt	25.00
		—————\$2,922.55

LABOR AND SUPPLIES.

Am. Glucose Co.....	meter screens.....	\$ 70.16
F. Arend.....	spanner	1.00
A. L. Barber.....	spanner	1.00
T. Dark.....	spanner	1.00
Folz, Ashman & Co...	spanner .....	.85
J. E. McIntire.....	spanner	2.00
Roch. & Pitts. Ry. Co..	spanner	2.00
W. H. Glenny S. & Co.	laying water pipe from Ter- race to warehouse.....	283.90
Burt & Co.....	extra work on Ganson street	5.50
Crawford Marble Wks.	branch	100.00
Capt. Maytham.....	damage to hydrant.....	3.20
D. L. & W. R. R. Co..	hydrant foot of Main st ...	78.28
Buffalo Alcholine Wks.	4 inch service pipe.....	201.12
Atlas Refining Co...	laying branch on Elk st....	29.07
Geo. Irr.....	pipe in Avenue A.....	518.97
C. P. Beckwith & Co..	3 4-in single, 4 branches...	9.30

G. Lang.....	branch and meter.....	\$ 284.51
Erie Co. Alms House..	supply pipe from Main st....	2,245.95
J. C. Jewett & Son....	hydrant	18.09
Buffalo St. R. R. Co..	changing valves.....	64.51
City and County Hall..	work in building.....	11.44
Buffalo Chemical W'ks..	laying pipe, Abbott road....	871.58
Folz, Ashman & Co....	labor and use of boilers....	748.00
Jubilee Water Works..	labor and supplies.....	74.31
J. L. Schoelkopf.....	service pipe, Abbott road....	41.26
James Ryan.....	labor and material.....	5.52
S. O. Barnum.....	repairs to meter.....	2.00
Jno. T. Noye.....	valve and box.....	23.00
Lafayette St. Church..	branch for motor.....	118.95
Lee, Holland & Co....	pipe laid in Court, Wilkinson st's. and yard....	445.59
Adam, Meldrum & A..	pipe in Express street.....	280.60
Oppenheimer & Co....	pipe across Terrace.....	168.52
Jno. C. Graves.....	branch for House, Chapin Park	114.94
Buffalo Gas Light Co..	puddling trenches.....	25.00
		\$6,849.74
		<hr/>
		\$382,581.64

WATER BONDS.

Bonds outstanding January 1, 1885, issued for the purchase, extension and improvement of the Water Works.

Date of Issue.	Amount.	When Due.	Date of Issue.	Amount.	When Due.
.....
July 1. 1869	\$100,000	July 1, 1885	Sept. 1, 1873	\$ 200,000	Sept. 1, 1903
Oct. 1, 1869	150,000	Oct. 1, 1886	April 1, 1874	100,000	April 1, 1905
Mar. 1. 1870	100,000	Mar. 1, 1887	July 1. 1874	100,000	July 1, 1906
June 1, 1870	100,000	June 1, 1888	Aug. 1, 1874	100,000	Aug. 1, 1908
Oct. 1, 1870	145,000	Oct. 1, 1889	Oct. 1, 1874	79,382	Oct. 1, 1908
Jan. 1, 1871	{ 50,000	Jan. 1, 1890	Aug. 1, 1875	100,000	Aug. 1, 1909
Aug. 1, 1871	{ 100,000	Jan. 1, 1891	Jan. 1, 1876	50,000	Jan. 1, 1896
Oct. 1, 1871	50,000	Aug. 1, 1891	July 1, 1876	100,000	July 1, 1896
April 1, 1872	50,000	Oct. 1, 1891	Sept. 2, 1878	50,000	Sept. 2, 1898
July 1, 1872	100,000	April 1, 1887	Apr. 25, 1879	100,000	April 25, 1898
Oct. 1, 1872	100,000	July 1, 1890	Apr. 26, 1880	100,000	April 26, 1899
Dec. 1, 1872	{ 100,000	Oct. 1, 1892	July 1, 1880	50,000	July 1, 1904
	{ 100,000	Dec. 1, 1888	Sept. 1, 1880	100,000	Sept. 1, 1904
		Dec. 1, 1892	Nov. 26, 1880	64,000	Nov. 26, 1897
			Apr. 25, 1881	100,000	April 25, 1900
			Apr. 1, 1884	90,000	April 1, 1901
			Total	\$2,828,382	

INTEREST PAID ON WATER BONDS DURING 1884.

January 14th.	\$ 8,750.00
February 18th.	13,750.00
March 17th.	34,103.37
April 21st.	2,715.00
May 19th.	10,500.00
June 16th.	22,350.00
July 21st.	22,500.00
September 23d.	34,153.37
October 20th.	1,280.00
November 17th.	10,500.00
December 22d.	21,500.00

\$182,101.74

COST OF WATER WORKS FROM PURCHASE TO DATE.

Original Purchase.....	\$ 705,000.00
Dodge Farm.....	91,861.18
Extensions and Improvements.....	3,129,081.80
Interest on Bonds.....	2,632,627.49
Maintenance and Repairs.....	1,228.444.35
On hand January 1, 1885.....	96,989.72
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Total.....	\$7,884,004.54

RECEIPTS.

Water Rates.....	\$3,438,774.69
Bonds	3,028,382.00
Taxes.....	1,416,847.85
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Total.....	\$7,884,004.54

PRESENT STANDING OF WATER WORKS ACCOUNT.

Original Purchase.....	\$ 705,000.00
Real Estate, including Taxes.....	99,136.18
Engines	233,217.05
Holly Pumping House.....	12,092.25
Holly Pumping Machinery.....	39,000.00
New Engine House.....	70,472.00
Gas Well.....	9,406.44
Inlet Tunnel and Pier.....	521,823.15
Main Pipes, Branches, Hydrants, etc.....	2,199,267.70
Coal and Boiler House and Chimney.....	23,260.53
Gaskill Engine.....	788.50
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Total	\$3,913,463.80

COMPARATIVE STATEMENT.

Revenue received, coal consumed and water pumped annually for fourteen years.

Year.	Revenue.	Expenses.	Coal Consum'd Tons.	Water Pumped. Gallons.	Extensions.	Pipe.		Each Year	
						Miles.	Feet.	Miles.	Feet.
1871	\$124,865.00	\$77,456.95	3,645	2,775,752,490	284,297.84	67	4,644	.....
1872	138,150.00	69,228.74	4,546	3,226,891,140	355,492.46	77	2,921	9	3,557
1873	168,267.20	77,747.60	4,720	3,329,193,162	308,600.46	81	4,912	4	1,991
1874	176,219.10	66,218.50	2,852.50	3,040,012,107	307,355.64	86	4,905	4	5,273
1875	184,516.48	64,862.37	3,422.67	3,828,594,027	159,098.75	91	1,591	4	1,966
1876	191,335.84	61,474.22	3,357.88	4,020,936,278	106,900.21	92	4,931	1	3,340
1877	189,296.90	57,553.27	3,249	4,267,218,162	17,014.05	93	2,631	..	2,980
1878	200,183.28	55,230.50	3,524.50	4,589,879,986	48,555.32	94	3,376	1	745
1879	205,415.75	54,497.22	3,979.75	5,291,337,520	11,457.50	97	626	2	2,530
1880	216,214.37	60,933.67	5,809	5,993,009,343	161,883.89	102	873	5	247
1881	210,031.46	76,629.09	7,192.80	6,344,182,224	201,487.10	114	4,149	12	3,276
1882	362,762.07	79,105.90	.....	7,076,212,870	160,617.81	131	524	16	1,655
1883	426,353.57	87,193.53	8,811	8,568,445,200	200,029.90	150	529	18	5,135
1884	381,581.64	81,078.88	9,128	8,789,971,200	186,623.92	164	2,931	14	2,402

BALANCE SHEET, BUFFALO CITY WATER WORKS, DEC. 31, 1884.

2.	Buffalo City Water Works Construction.....	\$ 584,382.00	
3.	Buffalo City Water Works Extension Fund.....	237,737.25	
4.	Bonds Payable.....		\$2,871,882.00
5.	City Treasurer.....	170,635.96	
6.	Hydrant and Water Fund.....		466,567.85
7.	Buffalo City Water Works Extension Loan.....	2,345,000.00	
17.	Supply Account.....		29,418.59
20.	Supply Account.....		267,702.80
26.	Store House.....	11,209.92	
51.	Fuel... ..	53,877.53	
58.	Salaries.....	9,561.69	
59.	Engineers, Lower Engine House	3,266.56	
60.	Firemen, Lower Engine House.	4,465.50	
61.	Labor, Lower Engine House...	5,583.87	
62.	Engineers, Upper Engine House	2,583.24	
63.	Firemen, Upper Engine House.	1,560.00	
64.	Labor, Upper Engine House...	1,104.87	
66.	Watchmen.....	300.00	
67.	Pipe Inspector.....	405.75	
68.	Teamster.....	563.52	
69.	Tapping	1,435.63	
74.	Office Expenses.....	1,344.42	
75.	Stationery.....	295.73	
77.	Pipe and Specials.....		3,341.76
78.	Advertising.....	247.57	
79.	Store House Repairs, on Building	560.86	
81.	Upper Engine House, Repairs on Building	131.86	

83.	Lower Engine House, Repairs on Building	\$ 372.37
85.	Supplies, Upper Engine House.	286.78
88.	Inspectors	5,360.00
89.	Repairs, Engine No. 1, Upper Engine House.....	51.37
91.	Repairs, Engine No. 2, Upper Engine House.....	445.45
94.	General Repairs, Machinery Upper Engine House.....	108.74
97.	Repairs, Engine No. 1, Lower Engine House.....	229.22
99.	Repairs, Engine No. 2, Lower Engine House.....	174.62
100.	Repairs, Engine No. 3, Lower	65.51
101.	Repairs, Worthington Boilers No. 1, 2 and 3.....	10.24
102.	Repairs, Marine Boilers Nos. 1, 2 and 3.....	12.03
103.	Repairs, Boilers Nos. 4 and 5...	86.54
104.	General Repairs, Machinery Lower Engine House.....	183.73
106.	New Tools, Lower Engine House	223.35
108.	Tool Repairs, Lower Eng. House	41.73
112.	Supplies, Lower Engine House..	1,054.31
113.	Feed	621.76
116.	Stable Supplies.....	195.09
117.	Horse Shoeing.....	118.80
118.	Harness Repairs.....	155.40
120.	Repairs, Wagons and Sleighs...	370.08
122.	Wagons and Sleighs Purchased..	512.50
123.	Veterinary	34.75
136.	Meter Repairs.....	1,161.78
140.	Valve Repairs.....	2,294.85

142.	Repairs, Joint Leaks.....	\$	749.83	
146.	New Tools, Store House.....		563.98	
148.	Repairs, Tools, Store House....		97.77	.
150.	Repairs of Bridges.....		9.35	
152.	Fountains, Free Hydrants and Horse Troughs.....		1,908.99	
153.	Corporation Cocks and Services.		2,765.75	
155.	New Coal House.....		20,835.53	
160.	Maps.....		1,559.01	
176.	General Street Repairs.....		4,732.39	
179.	Meter Rates.....			48,024.30
181.	Water Rates.....			308,651.28
182.	City Treasurer.....		377,581.64	
191.	Street Sprinkling.....			1,302.24
192.	Street Paving.....			306.30
193.	Circus Rates.....			25.00
197.	Corporation Cocks.....			7,081.50
198.	Sale of Old Material.....			2,922.55
199.	Turn on Fees.....			137.00
200.	Rent of Dodge Farm.....			727.00
204.	Builders.....			1,340.08
208.	Gaskill Engine.....		788.50	
215.	Lead.....			2,944.62
228.	Hydrant Repairs.....		7,511.86	
234.	Labor Trench Account.....			3,025.52
281.	Clifford Street, Smith to Selkirk.		472.13	
282.	Central Avenue, William street Northerly.....		826.58	
281.	Delavan avenue, Chapin parkway to Delaware avenue.....		318.89	
281.	Dodge street, Main street to Elli- cott street.....		420.59	
282.	Eaton street, Michigan easterly.		400.06	

282.	DeWitt street, Forest avenue	.
	northerly.....	\$ 343.77
282.	Eighteenth street, Rhode Island	
	to Massachusetts.....	518.88
282.	Efner street, Georgia northerly..	288.74
283.	Front av. Connecticut southerly.	168.69
283.	Goodell alley, Tupper to Goodell	448.70
283.	Hampshire street, easterly across	
	Fargo avenue.....	159.29
283.	Herman street, Genesee to North	611.71
284.	Howard street, Metcalfe westerly	331.08
284.	Lutheran alley, Broadway to	
	William.....	705.60
284.	Masten street, Utica to Glenwood	
	avenue	363.97
284.	Michigan street, Balcom northerly	268.26
285.	Massachusetts street, Thirteenth	
	to Fourteenth.....	342.35
285.	Oneida street, Bond to Smith...	599.06
285.	Orlando street, Elk st. southerly.	224.81
285.	Peckham st. Watson to Emslie..	320.49
286.	Pratt street, Eagle to Clinton...	457.02
286.	Sherman street, Broadway to Syc-	
	amore.....	1,346 86
286.	Stanton st. William to Howard..	620.30
286.	Walter street, Elk to Perry.....	604.66
287.	Chapin parkway F, for J.C. Graves.	114.94
287.	Broadway, Ellicott to Pratt.....	11,954.87
287.	Ferry street, Main street to Rich-	
	mond avenue.....	8,719.14
287.	Main street, Amherst to Erie Co.	
	Alms House.....	25,280.95
288.	Broadway, Sherman to Smith...	3,645.00

288.	Ganson street.....	\$ 23,892.57
288.	Ashland avenue, Ferry street southerly and northerly.....	568.89
289.	Best street, Masten to 250 ft. east of Michigan....	473.51
289.	Boston alley, Burton alley to Virginia.....	308.91
289.	Bouck ave. West av. to DeWitt..	460.16
289.	Davis street, Genesee to Jefferson	505.31
290.	Elk street, Babcock to 500 feet easterly.....	534.80
290.	Fulton street, Hamburg to L. S. & M. S. R. R.....	767.22
290.	Herman street, Broadway to end of pipe.....	1,141.75
291.	Henry street, Lower Terrace to Erie Canal.....	369.77
291.	Hampshire street, Fargo avenue to Plymouth avenue.....	761.25
291.	Hamburg st., Elk to Fulton...	312.32
291.	Johnson street, Genesee to North	1,131.13
292.	Nineteenth street, from end of pipe to Massachusetts.....	212.96
292.	Sherman street, Genesee to North	990.86
292.	Sycamore street, Grey to Johnson	365.68
292.	Seventeenth street, Vermont to 324 feet southerly.....	295.73
293.	St. John's Place, Wadsworth st., 225 feet Westerly.....	193.99
293.	West ave., York to Connecticut.	595.74
293.	Masten street, Ferry street to 950 feet northerly.....	912.14
294.	Danforth street, Forest avenue to Bradley.....	753.44

294.	Broadway, Sherman to Fillmore avenue.....	\$ 7,354.79
294.	Upper Terrace, Eagle to 400 ft. southerly	354.10
295.	Elmwood avenue, Hodge avenue to Utica.....	187.34
295.	Erie street, from end of pipe to Buffalo River.....	61.68
295.	Randall street, from William to 200 feet south.....	135.30
296.	Utica street, from Elmwood to Ashland aves.....	193.51
296.	Chicago street, from Seneca 100 feet northerly.....	80.46
323.	Service Leaks.....	375.70
324.	Reservoir.....	887.56
324.	Chimney, new Gaskill Engine...	2,425.00
375.	Repairs, Fire Steamer.....	257.78
325.	Blacksmith Shop.....	907.48
327.	Repairs, Engineer's House.....	133.44
327.	Sewer Commissioners.....	717.88
328.	Hostler	605.00
329.	Street Reservoirs.....	520.97
329.	Bell Waterphone.....	500.00
331.	Horses Purchased.....	625.00
332.	Bird Island Pier Valve.....	884.26
334.	Repairs, Barn, Lower Eng. House	14.13
335.	Repairs, Dodge Farm.....	160.50
336.	Old Repair Account.....	207.40
338.	Repair, Feed Pumps, Lower Eng. House	142.37
339.	Inlet Pier.....	78.63
340.	Freight and Express.....	72.96

341.	James N. Scatcherd.....	\$ 108.00
341.	Louis P. Reichert.....	630.00
341.	James Ryan.....	630.00
342.	Rent of Bell Telephone.....	143.86
342.	Traveling Expenses.....	25.00
343.	George W. Miller.....	166.00
379.	Main street, Delavan avenue to Rail Road Crossing.....	2,000.00
380.	Express street.....	280.60
381.	Court & Wilkeson & Mill Yard..	467.84
381.	Ferry street, Richmond avenue to Hibbard street.....	3,384.42
381.	Bryant street, Richmond avenue to 84 feet easterly.....	67.46
382.	Chapin Parkway, Soldiers' Place to Delavan avenue.....	1,109.67
382.	Carroll street, Van Rensselaer to Heacock.....	393.92
382.	Delaware avenue, Ferry street to Chapin Place.....	677.46
383.	Dodge st., Michigan to Ellicott	757.02
383.	Fargo avenue, Massachusetts to School.....	393.22
383.	Fourteenth st., Vermont to Rhode Island.....	685.50
383.	Grape street, North to Best.....	516.38
384.	Thirteenth street, York street southerly.....	151.66
384.	Jefferson street, Best to Ferry...	10,596.07
385.	Laurel street, Michigan to Masten	636.93
385.	Maple street, Carlton to High..	557.31
385.	Mohawk street, Niagara 150 feet westerly.....	174.68

386.	Miama street, Alabama to Ham-		
	burgh.....	\$	325.34
386.	Nineteenth street, Rhode Island		
	street, northerly.....		375.51
386.	Pearl street, Lower Terrace to		
	Glenny's warehouse.....		279.40
387.	Riley street, Masten to Michigan		1,056.29
387.	Seventh street, Rhode Island to		
	Massachusetts		693.66
387.	Terrace, foot of Franklin to		
	Evans.....		261.27
388.	Terrace, across Terrace to Mann-		
	ing's Malt House.....		192.12
388.	Thirteenth street, Vermont to		
	Rhode Island.....		548 08
388.	Vermont street, at Bremen, Sev-		
	enteenth and Brayton.....		126.16
389.	Wilkeson street, Sixth to Court..		747.22
389.	Fourteenth street, Massachusetts		
	to Hampshire.....		596.63
389.	Balcom street, Main to Michigan		150.09
390.	Berlin street, High to Best.....		1,066.93
390.	Butler street, at Elmwood, Ash-		
	land and Howard avenues....		472.15
390.	Brayton street, Vermont to Rhode		
	Island		523.98
391.	Barker street, at Linwood avenue		35.11
391.	Bundy's alley, Sycamore street		
	northerly.....		295.71
391.	Chenango street, Rhode Island		
	to Utica.....		395.87
392.	Buffalo Street R. R. Co....		94.77
392.	George Martin.....		29.97

393.	Folz, Ashman & Co.....	\$	362.75	
393.	A. Schaefer.....		63.00	
363.	N. Y., W. S. & B. R. R. Co... .		63.96	
398.	M. Scanlon.....		15.50	
399.	Adam Hastman		147.44	
400.	Hardwicke & Ware.....		34.41	
190.	Flushing sewers.....			\$ 213.27
196.	Labor and supplies.....			1,730.75
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				\$4,017,344.41 \$4,017,344.41

BALANCE SHEET, BUFFALO CITY WATER WORKS, JANUARY 1, 1885.

2.	Buffalo City Water Works Construction.....	\$584,382.00	
3.	Buffalo City Water Works Extension Fund.....	402,300.18	
4.	Bonds Payable.....		\$2,828,382.00
5.	City Treasurer.....	96,989.72	
6.	Hydrant and Water Fund.....		642,789.90
7.	Buffalo City Water Works Extension Loan.....	2,387,500.00	
		<hr/>	<hr/>
		\$3,471,171.90	\$3,471,171.90

SCHEDULE OF BILLS AND ACCOUNTS

APPROVED DURING THE YEAR 1884 BY THE WATER BOARD AND
PAID BY THE CITY TREASURER.

1884. IMPROVEMENTS AND EXTENSIONS.

Jan'y.	14,	G. C. Grimard, Cash'r..	Wages week ending Jan.		
			12	\$	18.00
Jan'y.	21,	Buffalo Gas Light Co..	Relaying gas mains.....		13.23
"		Vosburgh & Baker....	Sundries.....		18.56
Jan'y.	28,	Bell Waterphone Co...	Use of waterphone.....		250.00
"		G. C. Grimard, Cash'r..	Pay roll, January.....	2,385.97	
Feb.	18,	S. D. Colie.....	Shingles		30.45
"		Weed & Co.....	Axes and helves.....		4.40
"		John C. Post	Sundries		4.80
"		Felthousen & Russell..	Labor and material.....		6.00
"		E. G. Felthousen	Sundries		8.63
"		F. F. Silbert.....	1 bob sleigh.....		60.00
"		Geo. W. Shaw.....	Sundries		26.70
"		G. C. Grimard, Cash'r..	Weekly pay roll.....	119.44	
Feb.	25,	B. Cunningham.....	Excavating Main street.	1,500.00	
"		G. C. Grimard, Cash'r..	Weekly pay roll.....	133.50	
"		G. C. Grimard, Cash'r..	Feb. pay roll.....	2,192.81	
Mar.	3,	Ludlow Valve Mfg. Co.	1 set of bevel gearing for 20" valve.....		9.25
Mar.	10,	Hurd & Hauenstein...	Lumber		13.63
"		J. N. Matthews.....	Ad. prop. sale of engine.		10.00
"		Ludlow Valve Mfg. Co.	50 hydrants and frost cases	1,537.50	
Mar.	31,	Telegraph Pub. Co....	Ad. prop. cast iron pipe.		12.60
"		Engineers News Pub.			
		Co. (N. Y.).....	Chimney and foundation.		5.40
"		Buffalo Evening News.	Pub. prop. for C. I. pipe.		11.00
"		Buffalo Evening News.	Pub. prop. excavating...		7.50

Mar. 31,	Fred Fleming.....	Striping and lettering bulletin board.....	\$ 2.00
"	Powell & Plimpton....	Liniment blueing etc....	.35
"	Lee, Smith & Moore...	Coal	4.50
"	John C. Post.....	Oil (boiled.).....	6.50
"	Fries & Co.....	Rep. and corp. cocks ...	1.00
"	C. J. Hamilton.....	Lumber and cartage....	28 62
"	John C. Post.....	Boiled oil and ven. red..	4.00
"	Young, Lockwood & Co.	Stationery	26.68
"	G. C. Grimard, Cash'r..	Pay roll, March	1,408.22
"	G. C. Grimard, Cash'r..	Weekly pay roll ending March 31.....	96.26
April 7,	G. C. Grimard, Cash'r..	Weekly pay roll ending April 5.....	175.80
April 14,	Scott & Neal.....	Livery.....	4.00
"	Howard Iron Works....	1 5" swivel vise.....	19.50
"	The Courier Co.....	Copy daily Courier and adv.....	22.66
"	Buffalo Evening News.	Ad. sale Shepard engine.	11.25
"	Hammond & Guild....	Rep. clock and rep. steel tape.....	1.50
"	Buffalo Gas Light Co..	Coke.....	4 00
"	Williamsville Lime Co.	Cement	10.00
"	Lee, Smith & Moore...	Coal	4.25
"	Cornell Lead Co.....	Lead	2,212.60
"	W. C. McDonald.	Removing earth for buildings at lower pump house.....	460.00
April 21,	Felthousen & Russell..	Labor and material.....	10.53
"	Farrar & Trefts.....	Labor and material.....	.70
"	J. D. Warren.....	Ad. prop. cast iron pipe, excavating, sale of old engine	18.75

April 21,	S. Chamberlain	Wagon repairs	\$ 202.74
"	G. C. Grimard, Cash'r..	Roll for 2 weeks, ending	
		April 19th.	239 01
"	Irlbacker & Davis	Sundries	57.59
"	Pratt & Co.	Sundries	211.42
"	Geo. B. Hayes	Cast iron pipes	1,548.31
"	Geo. B. Hayes	Cast iron pipes	854.79
April 21,	G. B. Hayes	Sundries	946.79
April 28,	S. S. Jewett & Co.	Stove grate . . . . .	.56
"	E. H. Butler	Pub. prop. for excavating	7.50
"	G. C. Grimard, Cash'r .	Pay roll, April	1,258.08
"	B. Cunningham	Main St. Ex. trench	1,500.00
"	W. J. McDonald	Removing earth for buildings at lower en- gine house	427.00
"	G. C. Grimard, Cash'r.	Exc. Trenches ending April 26, 1884	541.95
May 5,	Ferry boat "Niagara".	2 trips to inlet pier	9.80
"	James Boland	Labor and material,	14.28
"	Norman E. Mack	Advertising	14.64
"	W. J. McDonald	Hauling cinders	25.00
"	Reinecke & Zesch	Printing and advertising	30.75
"	W. J. McDonald	Teaming and labor	15.75
"	Adams, Moulton & Co.	Lumber	109 65
"	James Boland	Building blacksmith shop gen. rep. to walls	283.65
"	Geo. B. Hayes, No. 6..	Cast iron pipe	3,664.89
"	Geo. B. Hayes, No. 8..	Cast iron pipe	2,465.87
"	Geo. B. Hayes, No. 9..	Special castings	160 06
"	G. C. Grimard, Cash'r.	Weekly pay roll	564.50
May 12,	Fries & Co.	Corporation cocks	369.00
"	F. S. Pease & Co.	53 1/2 galls. W. W. oil	7.92
"	Buffalo Gas Light Co..	Coke and cartage	8.84

May 12,	W. J. McDonald.....	Teaming and labor.....	\$ 34.38
"	C. W. Holloway.....	Sand	7.50
"	Howard Iron Works...	Labor and material.....	751.79
"	W. J. McDonald.....	Removing earth for new buildings at lower en- gine house.....	400.00
"	P. G. Straub.....	Excavating trench Main St., Erie R. R., and Alms House.....	600.00
"	B. Cunningham.....	Excavating trench on Main St., bet. Del. Ave. and E. R. R.....	1,200.00
"	Louis H. Knapp, Supt.	Two horses.....	500.00
"	G. C. Grimard, Cash'r.	Weekly pay roll ending May 10, excavating trench.	514.98
May 19,	G. C. Grimard, Cash'r.	Roll week ending May 17	613.59
May 26,	James Boland.....	Repairing.....	228.04
"	Lee Smith & Moore...	Coal	10.20
"	H. H. Brown.	Labor and material.....	15.55
"	Eddy Valve Co.....	Valves.....	723.00
"	H. G. Trout	Labor and material....	34.93
"	H. G. Trout.....	Labor and material.....	233.30
"	Pratt & Co.....	Sundries.....	109.17
"	G. B. Hayes, No. 10...	Cast iron pipes.....	2,584.28
"	G. B. Hayes, No. 11...	Special casting.....	24.48
"	G. B. Hayes, No. 12...	Cast iron pipes.....	3,912.43
"	G. B. Hayes, No. 13...	Special castings.	232.55
"	G. B. Hayes, No. 15...	Special castings.....	70.51
"	G. B. Hayes,.....	Cast iron pipes.....	4,065.83
"	B. Cunningham.....	Excavating trench Main bet. Delavan ave. and E. R. R.....	2,500 00

May 26,	G. C. Grimard, Cash'r.	Pay roll May, 1884.....	\$1,333.02
"	G. C. Grimard, Cash'r.	Roll week ending May 24	510.35
"	P. G. Straub.....	Excavating trench Main St., bet. Erie crossing and Alms House.....	1,000.00
June 2,	G. C. Grimard, Cash'r.	Roll ending May 31.....	819.81
"	James Boland.....	Building new coal house and repairing wall.....	500.00
"	Pratt & Letchworth...	57½ lbs. malleable iron.	5 75
"	Jas. Bourgman.....	Charcoal.....	1.50
"	Buffalo Gas Light Co..	Coke	13.33
"	James D. Warren.....	Ad. for excavating, and coal	10.00
June 9.	Engineers News Pub- lishing Co.....	Ad. for bids for boilers, engines, etc.....	5.40
"	J. L. Mott Iron Works, New York.....	Drinking fountains.....	172.50
"	Weed & Co.....	Sundries.....	7.80
"	J. C. Post.....	Sundries.....	6.48
"	C. J. Hamilton.....	Plank door frame.....	2.25
"	Goodyear Rubber Co..	Sundries.....	66.98
"	Howard Iron Co.....	Hydrants, labor, &c....	1,739.45
"	Geo. B. Hayes No. 7..	Special castings.....	187.54
"	" " "	Cast iron pipe.....	4,483.08
"	" " "	Spec. castings.....	83.14
"	" " "	Cast iron pipe.....	5,000.29
"	G. C. Grimard, Cash'r.	Roll week ending June 7.	1,028.83
"	W. C. McDonald.....	Removing earth for build- ings, L. Eng. House..	600.00
"	P. G. Straub.....	Excavating Trench Main st. Erie R. R. to Alms House.....	700.00

June 9,	G. C. Grimard, Cash'r.. Roll week ending June 14.	\$ 973.55
June 23,	W. C. McDonald..... Teaming and labor.....	72.63
"	Eddy Valve Co..... 2-10 in. and 1-6 in. Cl. 4 valves.....	84.15
"	Eddy Valve Co..... 2-10 in. and 2-16 in. Cl. 4 valves.....	220.00
"	T. G. Johnson..... 500 brass checks.....	10.00
"	Hurd & Hauenstein.. Lumber.....	21.21
"	Eddy Valve Co..... 1-36 in. Cl. 4 valve.....	650.00
"	James Bourgman..... Charcoal.....	1.80
"	Telegraph Pub. Co.... Advertising.....	5.85
"	J. C. Champion..... Mechanical boiler cl'n'r	6.00
"	The Eddy Valve Co... 4-16 in. and 1-12 in. Cl. 4 valves.....	356.00
"	Felthousen & Russel.. New tools, &c.	19.13
"	James Boland..... Labor and material....	104.59
"	James Boland..... Rep. store house, &c....	113.15
"	James Boland Repaving.	630.00
"	Pratt & Co..... Sundries	32.54
"	Geo. B. Hayes..... Special castings.....	317.15
"	Geo. B. Hayes..... Cast iron pipe.....	5,112.13
"	Geo. B. Hayes..... Special castings.....	125.19
"	Geo. B. Hayes..... Cast iron pipe.....	3,225.03
"	Geo. B. Hayes Special castings.....	314.27
"	G. C. Grimard, Cash'r.. Pay roll, week ending June 21, 1884.....	1,107.07
June 30,	R. G. Druller..... Carting fountains.....	10.00
"	Brady & Maltby..... Stone foundations.....	168.75
"	M. Riter..... Iron, ladders, etc.....	28.70
"	Thos. Robinson..... Lumber	87.02
"	Geo. B. Hayes..... Special castings.....	50.68
"	Geo. B. Hayes..... Cast iron pipe.....	4,877.58
"	G. C. Grimard, Cash'r.. Pay roll June, 1884.....	1,536.16

THE BUFFALO CITY WATER WORKS.

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June 30,	G. C. Grimard, Cash'r..	Pay roll week ending	
		June 28, 1884.....	\$1,096.85
"	P. G. Straub.....	Excavating on Main st., bet'w. N. Y., L. E. & W. R. R. and Almshouse...	2,000.00
"	B. Cunningham.....	Excavation on Main st., bet'w. Delavan ave. & N. Y. & W. R. R.....	1,700.00
July 7,	Lee, Smith & Moore...	One ton Blossburg coal.	4.25
"	Charles Suor.....	Pine plugs.....	42.36
"	Eddy Valve Co.....	3-16 in. Cl. valves.....	84.00
"	Eddy Valve Co.....	Foot valves & strainers.	235.50
"	J. N. Matthews.....	Advertising.....	38.75
"	A. R. Ketchum.....	Valve boxes.....	182.25
"	Adams, Moulton & Co.	Lumber	1.71
July 7,	Howard Iron Works...	Hydrants and castings..	386.52
"	Louis H. Knapp.....	Sundry advances.....	16.45
"	Bingham & Morgan....	Valve boxes, etc.....	373.57
"	Geo. B. Hayes.....	Cast iron pipe....	4,442.96
"	Geo. B. Hayes.....	Special castings.....	207.05
July 14,	R. E. Andrews.....	Sundries.....	7.00
"	A. R. Ketcham....	Valve boxes.....	76.42
"	W. H. H. Newman & Co.	Pig lead.....	240.35
"	Fries & Co.....	Corporation cocks	197.51
"	Buffalo Lub. Oil Co...	Oil.....	5.58
"	C. J. Hamilton.....	Staves.....	192.00
"	G. C. Grimard, Cash'r..	Weekly roll July 12.....	1,179.84
"	P. G. Straub.....	Ex. trench Main Street, N. Y. L. E. & W. R. R., to Erie Co. Alms House	1,000.00
"	S. D. Colie.....	Lumber	110.69
"	Geo. B. Hayes.....	Cast iron pipes.....	3,408.59
"	Geo. B. Hayes.....	Special casting.....	499.11

July	23,	James Boland.....	Building coal house and repairing walls.....	\$1
July	7,	James Boland.....	Same	1.
"		W. C. McDonald.....	Removing earth from above.....	1.
"		G. C. Grimard, Cash'r.	Weekly roll lab. ending July 5.	
July	21,	Eddy Valve Co.....	3-16 in. Cl. 4 valves....	
"		Eddy Valve Co.....	50-6 in. Cl. 4 valves....	
"		Felthousen & Russel...	Sundries.....	
"		John Lyth.....	Sundries.....	
"		G. B. Hayes.....	Cast iron pipes.....	4
"		G. C. Grimard, Cash'r.	Weekly roll lab. ending July 19, 1884.....	1
"		M. E. Beebe.....	Drawings for new coal house.....	
"		A. Adomy.....	Old lead.....	
"		W. C. McDonald.....	Removing dirt for foun- dation of new engine.	
"		Scott & Baker.....	Livery hire.....	
"		A. R. Ketcham.....	Valve boxes.....	
"		Geo. B. Hayes.....	Special castings.....	
"		Geo. B. Hayes.....	Cast iron pipes.....	3
"		Geo. B. Hayes.....	Special castings.....	
"		W. C. McDonald.....	Excavating earth for new coal house.....	
"		P. G. Straub.....	Excavating on Main St. bet. Erie R. R. and Alms House.....	
July	28,	G. C. Grimard, Cash'r..	Pay roll July 1884.....	1
"		G. C. Grimard, Cash'r..	Fund to pay wages, lab- orers during vacation "Common Council."..	6

July	28,	G. C. Grimard, Cash'r. Wages, laborers w'k ending July 26, 1884.....	\$1,058.85
Aug.	4,	James Boland.....Repaving	207.26
"		James Boland.....Repairs.....	19.39
"		James Boland.....New coal shed.....	1,118.00
"		James Boland.....Drinking fountain.....	94.24
"		James Boland.....Drinking fountain.....	71.12
"		A. R. Ketcham.....Valve boxes.....	119.22
"		D. Ullman.....Rope.....	145.30
"		James Boland.....In full of contracts.....	2,222.22
"		N. Y. C & H. R. R. R. Co.....Freight	22.00
"		B. Cunningham... ..Excavating rock on B'w.	1,000.00
"		J. L. Mott.....Drinking fountains. ...	535.10
"		Fries & Co.....Sundries.....	403.86
"		G. C. Grimard, Cash'r. Excavating, week ending Aug. 2.....	1,052.08
Sept.	1,	D. R. & H. Fogelsonger. Cut stone for coal shed.	258.00
"		J. W. Trimms' Sons... Tarred Rigging.....	210.90
"		C. W. Holloway.....Sand	15.00
"		Weed & Co.....4 kegs 30 nails.....	10.00
"		Jas. Bourgman.....12 bu. charcoal	1.80
"		Hurd & Hauenstein... Hemlock	34.10
"		Brady & Maltby.....Labor and material.....	24.35
"		Williamsville Lime Co. Cement and lime.....	6.00
"		Howard Iron Works... Hydrants, etc.....	2,420.95
"		Farrar & Trefts.....Wrought iron pipe for Ganson st., supply....	2,457.69
"		Hingston & Wood. ... Dredging and laying pipe across Buffalo river...	1,500.00
"		B. Cunningham .....Excavating Rock on Broadway bet. Smith and Sherman.....	1,500.00

Sept.	1,	P. Hickler.....	Launching and sinking pipe in Buffalo R., etc.	\$1,500.00
"		G. B. Hayes.....	Special casting.....	207.16
"		G. B. Hayes.....	Cast iron pipe.....	1,879.72
"		G. B. Hayes.....	Cast iron pipe.....	1,902.13
"		G. B. Hayes.....	Special casting.....	65.10
"		G. B. Hayes.....	Cast iron pipe.....	1,569.99
"		G. B. Hayes.....	Special casting.....	159.23
"		G. B. Hayes.....	Special casting	355.48
"		G. B. Hayes.....	Cast iron pipe.....	1,055.50
"		G. B. Hayes.....	Special casting.....	152.31
"		G. B. Hayes.....	Cast iron pipe.....	1,098.89
"		G. C. Grimard, Cash'r.	Pay roll, August.....	1,289.09
"		James Boland.....	Bldg. new coal house...	2,000.00
"		P. G. Straub.....	Excavating trench on Main st., bet. Erie R. R. and Alms House..	150.00
Sept.	22,	P. Hickler.....	Repairs to inlets, old and new tunnels.....	785.00
"		B. Cunningham.....	Excavating rock on Broadway bet. Smith and Sherman	1,100.00
"		P. Hickler.....	Launching and sinking pipe in Buff. river, etc	75.00
Sept.	29,	G. C. Grimard, Cash'r.	Pay roll, September....	1,458.22
"		Jos. Churchyard	Constructing roof for new coal house.....	1,500.00
"		James Boland.....	Repaving.....	1,055.54
Oct.	4,	Jno. C. Post.....	Sundries.....	12.40
"		The Eddy Valve Co....	2 10" cl. 4 valves.....	63.00
"		Jno. C. Post.....	Sundries.....	4.20
"		Ulbrich & Kingsley...	Sundries.....	30.45
"		T. Conboy.....	Hay and straw.....	51.41

Oct.	4, Niagara Bridge Works.	Constructing water pipe bridge.....	\$ 620.00
Oct.	6, F. Willians & Co.....	1 ton Blossburgh coal...	4.25
"	Louis A. Walker.....	Tamarack poles.....	16.00
"	Jno. Gisel.....	10 hitching posts.....	15.00
"	C. H. Kellogg.....	Sundries.....	41.65
"	H. G. Trout.....	Sundries.....	35.45
"	Hammond & Guild....	Nickel marine clock....	3.50
"	C. Suor.....	Pine plugs.....	19.00
"	Jas. Bourgman.....	Charcoal.....	1.80
"	James D. Warren.....	Printing.....	48.00
"	Fries & Co.....	Corporation cocks.....	386.40
"	Powell & Plimpton....	Sundries.....	3.08
"	S. D. Colie.....	Lumber.....	15.36
"	S. D. Colie.....	Lumber.....	54.25
"	G. B. Hayes.....	Cast iron pipes.....	1,017.61
"	G. B. Hayes.....	Special castings.....	44.66
"	G. B. Hayes.....	Special castings... ..	58.12
"	G. B. Hayes.....	Cast iron pipe.....	188.83
"	James Boland.....	Mason work.....	33.72
"	James Boland.....	Mason work.....	55.75
"	John Lyth.....	Vit pipe, etc.....	112.82
"	Farrar & Trefts.. ..	Labor and material....	58.33
"	Bingham & Morgan... ..	Valve boxes.....	201.45
"	Howard Iron Works... ..	Hydrants, etc.....	2,936.10
"	Pratt & Co.....	Sundries.....	126.97
"	Jos. Churchyard.....	Bulkhead new coal house	576.59
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	52.63
"	C. E. Walbridge.....	Banners and lanterns...	21.60
"	W. C. McDonald.....	Filling foot of Columbia st., for W. pipe across Buffalo river.....	51.00
"	F. S. Pease.....	Oil.....	6.00

Oct.	6,	Howard H. Baker & Co.	Manilla rope.....	\$ 12.75
"		Buffalo Gas Light Co.	Coke and cartage	20.00
"		Buffalo Gas Light Co.	Coke and cartage	24.00
"		Irlbacker & Davis.....	Merchandise.....	131.03
"		F. Williams & Co.....	1 ton Bloss. coal.....	4.25
"		B. Cunningham.....	Final payment excavating Broadway bet. Sherman and Smith ..	45.00
"		James Boland.....	New coal house.....	3,000.00
"		Jos. Churchyard	Constructing roof for new coal house.....	2,000.00
"		G. C. Grimard, Cash'r.	Weekly pay roll.....	42.75
Oct.	20,	National Meter Co....	Meter repairs.....	189.37
"		D. McNaughton.....	Sundries.....	209.13
"		D. McNaughton.....	Sundries.....	90.50
"		H. H. Baker & Co	Manilla rope.....	4.16
"		Geo. B. Hayes.....	Water pipe.....	498.90
"		Geo. B. Hayes.....	Special casting.....	39.72
"		Geo. B. Hayes.....	Water pipe.....	529.29
"		Geo. B. Hayes.....	Special casting.....	27.50
"		Geo. B. Hayes.....	Special casting.....	17.02
"		Geo. B. Hayes.....	Water pipe.....	76.03
"		Geo. B. Hayes.....	Special casting.....	43.87
"		Geo. B. Hayes.....	Water pipe.....	83.15
"		G. C. Grimard, Cash'r.	Weekly pay roll, Oct. 18.	28.50
Oct.	27,	G. C. Grimard, Cash'r.	Weekly pay roll, Oct. 25.	26.75
"		G. C. Grimard, Cash'r.	Pay roll for October....	1,274.14
Nov.	10,	Bingham & Morgan...	Sundries.....	10.62
"		Fries & Co.....	Corp. cocks	389.90
Nov.	10,	Hand & Johnson.....	Services of tug.....	12.00
"		Jos. Bourgman.....	Charcoal.....	1.80
"		Ulbrich & Kingsley...	Sundries.....	10.00
"		Hurd & Hauenstein...	Lumber	31.30

Nov. 10,	Wm'sville Quick Lime		
	Co	Cement.	\$ 5.00
"	Cornell Lead Works. . .	Lead pipes and solder. .	37.94
"	James Boland.	Final payment, erecting new coal house.	174 00
"	Jos. Churchyard.	Final payment, erecting timbered roof to new coal house.	91.97
"	G. C. Grimard, Cash'r. .	Weekly pay roll Nov. . .	44.06
Nov. 17,	Farrar & Trefts.	Labor and material. . . .	1,016.05
"	Young, Lockwood & Co.	Sundries.	16.85
"	D. Ullman.	Junk.	233.20
"	C. J. Hamilton.	Lumber.	35.73
"	Jos. Churchyard.	Planking for bulkhead at coal house, L. P. H. . .	12.48
"	Bingham & Morgan. . .	Valve boxes.	338.75
"	Machwirth Bro's.	Constructing roof on new coal house.	600.00
"	G. C. Grimard, Cash'r. .	Weekly roll Nov. 15. . . .	28.50
"	G. C. Grimard, Cash'r. .	P. O. Stamps.	25.00
"	James Boland.	Constructing chimney at lower pump house. . . .	2,425.00
Nov. 24,	G. C. Grimard, Cash'r. .	Weekly roll Nov. 22. . . .	285.88
"	G. C. Grimard, Cash'r. .	Roll Nov. 1884.	1,258.30
Dec. 1,	Sheeler & Sons.	Frames for lower engine house.	39 00
"	Eddy Valve Co.	1-3 in. Cl. 4 valve. . . .	8.25
"	G. C. Grimard, Cash'r. .	Weekly pay roll Nov. 29, 1884.	221.85
Dec. 8,	Bingham & Morgan. . .	Tops and covers to valve boxes.	32.76
"	Buffalo Gas Light Co. .	Coke	4.00
"	S. Chamberlain	Wagon repairs.	36.50

Dec. 8,	D. R. & H. Fogalsonger.	Door sills, window caps, etc., for new coal shed	
		L. E. H.	\$ 111.84
"	G. C. Grimard, Cash'r.	Weekly pay roll, Dec. 6, 1884	93.50
"	Machwirth Bros.	Constructing roof to coal shed as per contract..	513 16
"	James Boland	Repaving	292.36
Dec. 15,	P. G. Straub	Excavating trench on Main st., bet Erie R. R. and Alms House ..	47.65
Dec. 22,	Norman E. Mack	Advertising	3.88
"	Bott & Hughes	Painting and glazing new coal house	175.23
"	G. C. Grimard, Cash'r.	Weekly pay roll, Dec. 20, 1884	21.00
Dec. 8,	James Boland	Bld. sewer and receiver cor. Dodge and Mas- ten sts.	75.00
			<hr/>
			\$186,623.92

MAINTENANCE AND REPAIRS.

1884.

Jan'y. 21,	C. W. Miller	Coach hire	\$ 9.50
"	Vosburgh & Baker	Sundries .....	.96
"	Charles Kiefer & Co. . .	Oats	43.00
"	James Coyle	Wheelbarrow wheels.	18.00
"	Lenhard Miller	Pair bobsleighs.	57.50
"	Jos. Churchyard	Rep. bellows	10.00
Jan'y 28,	Henry Worthington. . .	Rep. engine counter. . .	6.00
"	Charles Kiefer & Co. . .	Oats	71.12
"	G. C. Grimard, Cash'r.	P. O. stamps	25.00
"	" " " " ..	Roll January	1700.00

THE BUFFALO CITY WATER WORKS.

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Feb.	4,	Norman E. Mack.....	Printing, &c.....	\$ 52.00
"	"	"	"	17.25
Feb.	11,	James Franklin.....	Tallow.....	12.20
"		Union Water Meter Co.	Meter studs.....	6.00
Feb.	18,	F. S. Pease.....	Oil.....	62.50
"		S. Chamberlain.....	Wagon repairs.....	8.84
"	"	"	"	16.95
"		John C. Post.....	Sundries.....	2.35
"		Felthousen & Russel...	Labor and material.....	9.90
"		Goodyear Rubber Co..	Sundries.....	16.56
"		Bingham & Morgan...	Door liners.....	3.71
"		Valentine Young & Son.	Whitewash brushes.....	3.00
"		Atlas Milling Co.....	Feed.....	13.80
"		Lee, Smith & Moore...	1 Ton chestnut coal....	6.10
"		Geo. W. Shaw.....	Sundries.....	32.82
"		Hugh McDonald.....	Horse shoeing.....	11.20
Feb.	25,	Williamsville Lime Co.	2 Bbls. lime.....	2.00
"		Hammond & Guild....	Eight-day clock.....	6.25
"		Union Water Meter Co.	Meter repairs.....	45.38
"		G. C. Grimard, Cash'r.	Roll, February.....	1,700.00
Mar.	3,	H. Cherry.....	Hay.....	24.32
"		National Meter Co....	Rivets.....	3.70
"		Pratt & Co.....	Sundries.....	20.15
Mar.	10,	Goodyear Rubber Co..	Valves and gaskets.....	151.49
"		Geo. W. Shaw.....	Packing.....	50.10
"		John C. Harvey.....	Wagon repairs.....	33.75
"		E. G. Felthousen.....	Water gauge glasses....	7.50
"		National Meter Co....	Repairs meters.....	5.90
"		Hugh McDonald.....	Horse shoeing.....	9.60
"		J. Harris, Agent.....	Soft soap.....	12.50
"		Atlas Milling Co.....	Feed.....	14.00
"		F. S. Pease.....	Oil.....	71.14
Mar.	31,	N. P. Hinckley, V. S..	Veterinary services.....	10.00

Mar. 31,	Maurice Laudesberg...	1 Bbl. British scale eradicator.....	\$ 94-25
"	Powell & Plimpton....	Liniment, blueing, &c...	4-17
"	Lee, Smith & Moore..	Coal.....	18.00
"	Norman E. Mack.....	Stationery.....	165.65
"	Felthousen & Russell..	Lampwicks and lamps..	1.55
"	Young, Lockwood & Co	Stationery.....	50.18
"	G. C. Grimard, Cash'r..	Pay roll, March.....	3,226.40
April 14,	C. W. Holloway.....	Sand.....	18.75
"	Buffalo Rubber Type Co	1 Autograph and hand stamp.....	4.00
"	Weed & Co.....	Barn door roller.....	.45
"	E. G. Felthousen.....	Labor and material.....	13.29
"	Lee, Smith & Moore...	Coal.....	6.10
"	Hugh McDonald.....	Horse shoeing.....	8.00
"	Goodyear Rubber Co..	Valves, hose, &c.....	106.75
"	Filsinger & Co.....	Hay.....	29.61
"	Ulbrich & Kingsley...	Sundries.....	22.65
"	F. S. Pease.....	Oil.....	26.50
April 21,	Felthousen & Russell..	Labor and material.....	1.00
"	Buffalo Lub. Oil Co...	Cylinder oil.....	67.50
"	C. Sturm.....	Labor and material.....	22.40
"	Farrar & Trefts.....	" " ".....	12.30
"	Valentine Bros.....	" " ".....	1.35
"	John C. Post.....	Glass.....	.30
"	Atlas Milling Co.....	Feed.....	10.80
"	Irlbacker & Davis.....	Sundries.....	2.63
April 28,	Jno. C. Harvey.....	Repairs, wagon.....	4.90
"	H. R. Worthington....	Meter sundries.....	1.62
"	Norman E. Mack.....	Stationery.....	25.00
"	H. R. Worthington....	Labor and material.....	55.02
"	H. R. Worthington....	Meter sundries.....	6.20
"	H. Cherry.....	Hay.....	29.44

THE BUFFALO CITY WATER WORKS.

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April	28,	H. Becker & Co.....	Harness repairs and supplies.....	\$ 45.80
"		G. C. Grimard.....	Pay roll, April.....	2,719.90
May	5,	Holly Mfg. Co.....	1 Piston.....	18.25
"		Tug Boat "Niagara"...	2 Trips to Inlet Pier....	30.00
"		C. G. Milling.....	Packing plate and steel diaphragms.....	2.00
"		S. Chamberlain.....	Wagon repairs.....	5.46
"		Hoddick & Co.....	1 Walnut frame.....	1.50
"		Norman E. Mack.....	Copy Daily Times, 1/4 ..	1.10
"		James Boland.....	Repaving	40.96
May	12,	Reid Smith.....	1 Bay mare, less allowed for 1 bay horse & mule	125.00
"		Adams, Moulton & Co.	Lumber.....	7.14
"		Goodyear Rubber Co..	Sundries... ..	58.28
"		C. E. Brinkworth.....	2 blue ribbons.....	1.80
"		Jno. C. Post.....	10 lb. red lead.....	.90
"		C. Kiefer.....	Straw and oats.....	98.56
"		Hugh McDonald.....	Horse shoeing.....	11.05
"		J. H. Ruckle & Co....	Rubber valves.....	141.90
"		C. J. Hamilton.....	Lumber.....	43.14
May	26,	James Boland.....	Repaving	223.00
"		Atlas Milling Co.....	Feed.....	9.45
"		H. Becker & Co.....	Harness repairing, etc..	6.95
"		Buffalo Lub. Oil Co...	Cylinder oil.....	43.88
"		Hurd & Hauenstein...	Lumber.....	13.25
"		Bell Telephone Co....	Rent telephone as per contract.....	143.86
"		A. H. Brown.....	Labor and material....	6.00
"		Felthousen & Russell..	Sundries.....	3.79
"		N. P. Hinckley, V. S...	Veterinary services.....	3.50
"		Jas. Supple.....	Repairing small boat...	25.00
"		James Franklin.....	50 lbs. tallow.....	5.00

May 26,	H. G. Trout.....	Labor and material.....	\$ 20.02
"	G. C. Grimard, Cash'r..	Pay roll, May, 1884.....	2,690.59
June 9,	Ludlow Valve Mfg. Co..	12 rubber rings, for hy-	
		drants.....	6 00
"	E. G. Felthousen.....	Wrenches & flue scrapers	22.38
"	H. Becker & Co.....	Harness material.....	4.90
"	Fries & Co.....	Corporation cocks.....	422.00
"	Hugh McDonald.....	Horse shoeing.....	16 80
"	S. Chamberlain.....	Wagon repairs.....	8 97
"	W. E. Lock.....	Harness and material...	51.85
"	S. Chamberlain.....	Wagon repairs.....	15.01
"	Buff. Rubber Type Fy...	Desk, pad and ink.....	1.75
"	Reinecke & Zesch.....	200 copies water report	
		for 1883, &c.....	115.00
"	National Meter Co....	Meter gears.....	1.50
"	Goodyear Rubber Co..	Sundries.....	38.36
"	G. C. Grimard, Cash'r..	P. O. stamps.....	50.00
June 23,	Jno. C. Harvey.....	Repair'g Supt's concord	
		wagon.....	14.20
"	The Courier Co.....	400 coin wrappers.....	1.00
"	Jabesh Harris, Agent..	Soft soap.....	12.50
"	Buffalo Lub. Oil Co...	Cylinder oil.....	44.11
"	A. H. Brown.....	Corporation drills, &c..	7.80
"	Norman E. Mack.....	Printing and stationery.	243.00
"	Walrath & Co.....	Sawdust.....	13.91
"	S. Somerville & Son...	Veterinary services.....	7.25
"	C. H. Gibbs.....	1 Craney mechanical	
		cleaner.....	130.00
"	Thos. Parkes.....	Sundries.....	12.56
"	James Boland.....	Repaving.....	230.85
"	Pratt & Co.....	Sundries.....	6.49
June 30,	The Courier Lith. Co..	Letter heads, pads, &c..	39.79
"	Pratt & Letchworth...	Linen sheets.....	6.60

June	30,	J. D. Smith.....	Sundries.....	\$ 10.05
"		E. H. Butler.....	Pup. prop. for coal.....	7.50
"		C. J. Heinold.....	Sundries.....	47.40
"		G. C. Grimard, Cash'r..	Pay roll June 1884.....	2,901.08
"		G. C. Grimard, Cash'r..	P. O. stamps.....	25.00
July	7,	H. R. Worthington....	Rep. engine counter....	4.50
"		Hugh McDonald.....	Horse shoeing	9.60
"		A. Christey.....	Bottle mucilage.....	1.00
"		J. H. Ruckle & Co....	Ft. valves and strainers.	35.50
"		H. Cherry.....	Hay	26.67
"		Farrar & Trefts.....	Rep. engine pump house	69.90
"		S. Chamberlain.....	Wagon repairs.....	83.81
"		Howard Iron Works...	Hydrants and castings..	1,200.00
"		Farrar & Trefts.....	Rep. engine pump house	90.71
"		Smith & Sherman.....	Paper and hanging same	76.55
July	14,	A. H. Brown.....	Labor and material.....	15.90
"		H. H. Baker.....	Sundries.....	31.98
"		Fries & Co.....	Corporation cocks, etc..	240.80
"		Buffalo Gas Light Co..	Coke and cartage.....	16.00
"		Buffalo Lub. Oil Co....	Oil.....	66.61
"		Farrar & Trefts.....	Engine repairs, etc.....	76.93
"		W. Comwith & Co.....	Pig lead.....	2,242.13
"		R. H. Hibbard, Agt.,		
		Union Steamboat Co.	Freight on pig lead	50.96
"		Goodyear Rubber Co..	Packing gaskets	5.81
July	21,	J. D. Warren.....	2,000 water arrears postal cards.....	23.00
"		Powell & Plimpton....	Sundries.....	3.06
"		C. Kiefer.....	Hay	30.28
"		Mason Bros.....	Compound.....	2.00
"		M. Riter.....	Repairs, boilers.....	74.23
"		M. Riter.....	Repairs, boilers.....	40.30
"		C. J. Heinold.....	Oats.....	92.03

July	21,	A. Rumsey & Co.....	Side light sole leather ..\$	5.90
"		The Courier Co.....	2 copies Buffalo City directory.....	8.00
"		C. Sturm.....	Rep. meters.....	1.75
"		C. E. Walbridge.....	2 cash boxes	3.36
"		G. C. Grimard, Cash'r.	Pay roll, July 1884.....	2,905.00
Aug.	4,	James Boland.....	Repaving.....	353.22
"		S. Chamberlain.....	Wagon repairs.....	158.91
"		C. E. Brinkworth.....	6 badges for inspectors.	12.00
"		J. J. McWilliams.....	Coal	7,200.00
Sept	1,	Eddy Valve Co	Valves	403.75
"		W. B. Collins.....	Rags	3.24
"		W. H. H. Newman....	Galvanized iron.....	10.80
"		Bell Waterphone Co...	Use of 12 waterphones..	250.00
"		Machwirth Bros.....	Sundries.....	13.73
"		Thos. Conboy.....	Hay	16.27
"		National Meter Co....	Sundries.....	8.20
"		Goodyear Rubber Co..	Sundries.....	20.09
"		Buffalo Lub. Oil Co...	Oil.....	76.80
"		A. H. Brown	Labor and material.....	3.50
"		C. J. Hamilton.....	Sundries.....	28.00
"		H. McDonald.....	24 new shoes, horses....	9.60
"		Bingham & Morgan...	Valve boxes.....	242 86
"		J. H. Ruckle & Co	Sundries.....	100.17
"		G. C. Grimard, Cash'r.	Pay roll, August.....	2,895.25
Sept.	22,	J. J. McWilliams.....	3,000 net tons grate coal.	11,250.00
Sept.	29,	G. C. Grimard, Cash'r.	Pay roll, September....	3,228.77
Oct.	4,	Henry Becker & Co...	Harness repairs.....	11 40
"		Frank Collignon.....	Corporation cocks.....	316.20
"		James C. Austin.....	Boiler compound.....	30.00
"		H. McDonald.....	Shoes for horses.....	6.80
"		Ulbrich & Kingsley...	Sundries.....	29.35
"		H. McDonald.....	Horse shoeing.....	13.60

THE BUFFALO CITY WATER WORKS.

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Oct.	4,	E. G. Felthousen.....	Sundries.....	\$	9.56
"		C. Sturm.....	New spindle in wheel...		1.00
"		H. R. Worthington....	Rep. engine counter....		12.75
Oct.	6,	Weed & Co.....	Sundries..		9.30
"		Kasson Bros	Compound.....		10.00
"		Jabesh Harris.....	Soft soap.....		12.50
"		Samuel McCutcheon...	Sundries.....		27.75
"		Reinecke & Zesch.....	Advertising.....		4.50
"		National Meter Co....	Meter repairs.....		4.35
"		F. S. Pease.....	Cylinder oil.....		21.40
"		J. H. Ruckle & Co....	Packing.....		13.96
"		Benjamin Kolb.....	Wagon repairs.....		63.35
"		J. H. Ruckle & Co....	Sundries..		45.40
"		H. Becker & Co.....	Harness repairs.....		27.74
"		F. S. Pease.....	Oil.....		7.74
"		Norman E. Mack.....	1 copy directory.....		4.00
"		Norman E. Mack.....	Water bills.....		60.00
"		Norman E. Mack.....	Envelopes.....		10.50
"		Thos. Conboy.....	Hay.....		41.02
"		Atlas Milling Co.....	Meal and bran.....		8.40
"		Buffalo Lub. Oil Co...	Oil		44.33
"		Hellriegel Bros.....	Tallow.....		2.50
"		Farrar & Trefts.....	Merchandise.....		57.28
"		Farrar & Trefts.....	Merchandise		148.79
"		Farrar & Trefts.....	Merchandise.....		49.88
"		J. D. Warren.....	Printing		48.00
"		S. Somerville & Son...	Veterinary services....		14.00
"		J. J. McWilliams.....	Coal.....		8,250.00
"		G. C. Grimard, Cash'r.	P. O. stamps		50.00
Oct.	20,	D. McNaughton.....	Sundries.....		52.85
"		W. C. McDonald.....	Hoisting coal.....		253.10
"		W. B. Collins.....	Rags.....		4.14
Oct.	27,	G. C. Grimard, Cash'r.	Pay roll, Oct.....		3,220.73

Nov. 10,	The Bell Telephone Co.	Telephone rent.....	\$ 147.50
"	C. J. Heinold.....	Bran and oats.....	79.50
"	Union Water Meter Co.	Meter register case lids.	2.50
"	C. Kiefer.....	Hay and oat meal.....	2.01
"	J. Laycock & Son.....	Pine lumber.....	28.80
"	Bickford & Francis.....	Sundries.....	6.50
"	Tifft Furniture Co.....	One office chair.....	5.00
"	S. Chamberlain.....	Wagon rep.....	34.40
"	F. S. Pease.....	Oil.....	58.45
"	John Lyth.....	Elbows and S. trap.....	6.68
"	Goodyear Rubber Co..	Gaskets and hip boots..	10.00
"	Felthousen & Russell..	Sundries.....	6.18
"	J. D. Lytle & Sons.....	Stable supplies.....	5.00
"	Buffalo Scale Co.....	Wheelbarrow scale.....	33.00
"	Ulbrich & Kingsley...	Sundries.....	9.45
"	Valentine & Son.....	Keys, etc	2.00
"	James Franklin.....	Tallow	9.00
"	S. S. Jewett & Co.	Stove door.....	.35
"	John C. Harvey.....	Wagon repairs.....	14.00
Nov. 17,	Young, Lockwood & Co.	Sundries	24.78
"	Farrar & Trefts.....	Labor and material ...	64.83
"	Pratt & Co.....	Sundries.....	45.75
"	Thomas Conboy.....	Pasturing horses.....	31.40
"	Weed & Co.....	Sundries.....	10.32
"	J. D. Warren.....	Printing	47.50
"	H. McDonald.....	Horse shoeing.....	8.80
"	Hardwick & Ware.....	1 Public hydrant and re- pairing the same....	6.50
"	Goodyear Rubber Co..	Gaskets.....	3.24
"	C. J. Hamilton.....	Lumber	1.00
"	F. S. Pease.....	Oil.....	29.42
"	H. Becker & Co	Harness repairs.....	46.35
"	John C. Post.....	Glass, oil, putty, etc....	10.80

Nov.	17,	J. H. Ruckle & Co....	Water gauge, glass, etc.	\$	7.50
"		C. J. Hamilton.....	Lumber		30.00
Nov.	24,	G. C. Grimard, cashier.	Pay roll Nov. 1884		2,832.82
Dec.	1,	National Meter Co....	Rep. 12 inch Gem meter.		2.40
"		Buffalo Rubber Type			
		Foundry.....	1 Hand stamp, engraving, etc.....		3.25
"		C. E. Brinkworth....	Blue ribbon.....		.90
"		Atlas Milling Co.....	C. Meal and bran.....		8.00
"		Machwirth Bros.....	Rep. store house		8.17
"		Joseph Rehn.....	Washing towels.....		10.50
"		J. J. McWilliams.....	4 tons coal.....		18.24
"		F. S. Pease.....	Oil		4.00
"		John Bosche's Son....	Wagon repairs.		7.25
Dec.	8,	H. McDonald.....	Horse shoeing		15.20
"		Star Oil Co.....	Oil	52	.25
"		Weed & Co.....	Files		7.26
"		Buffalo Lub. Oil Co...	Oil.....		47.96
"		James Boland.....	Building windows in Engine room.....	152	.17
"		James Boland.....	Repairing	277	.76
Dec.	15,	W. C. McDonald.....	Hoisting coal Lower Engine House.....	100	.10
"		G. C. Grimard, Cash'r.	Weekly roll Dec. 13, '84.		28.50
"		The Courier Co.....	Sundries.....		10.00
"		The Courier Co.....	Coin wrappers.....		.80
"		Goodyear Rubber Co..	Sundries.....		14.25
"		J. H. Ruckle & Co...	Packing		33.13
"		C. J. Heinold.....	Sundries.....		26.89
"		Jabez Harris.....	Soft soap.....		12.50
"		C. W. Miller.....	Carriage hire.....		3.00
"		Ulbrich & Kingsley...	Sundries.....		28.00
"		C. J. Heinold.....	Sundries.....		19.55

Dec. 15,	S. S. Jewett & Co.....	Castings	\$ 13.12
"	National Meter Co.....	Meter gear wheels.....	1.25
"	Ludlow Valve Mfg. Co.	Stems and nuts.....	27.00
"	J. J. McWilliams.....	Coal	4,780.13
Dec. 22,	C. J. Hamilton.....	Lumber	1.75
"	C. Kiefer.....	Straw.....	28.14
"	R. H. Thayer & Co...	Hydrant boxes.....	276.30
"	Bott & Hughes.....	Painting.....	8.00
"	C. Sturm.....	Meter repairs.....	8.50
"	McDonald & Lynch...	Rep. roof u. engine h..	12.00
"	Powell & Plimpton.....	2 Chamois skins.....	1.30
"	Norman E. Mack.....	Daily Times April 1 to July 1.....	1.25
"	Norman E. Mack.....	Daily Times July 1 to August 1.....	2.10
"	Norman E. Mack.....	Printing.....	56.74
"	Maytham's Line of Tugs.	Tug hire.....	20.00
"	A. Geckie.....	Marsh hay.....	147.28
"	S. Chamberlain.....	Wagon repairs.....	38.86
"	G. C. Grimard, Cash'r.	P. O. stamps.....	25.00
"	" " "	Pay roll, December.....	4,775.76
			<hr/>
			\$81,078.88

SERVICES.

Total number of Services in the City January 1, 1885, is nineteen thousand five hundred and thirty-seven, an increase of eight hundred and seventy-four over the previous year.

CORPORATION COCKS.

Statement of Corporation Cocks on hand, received and inserted from January 1st, 1884, to January 1st, 1885.

	$\frac{1}{8}$ Inch.	$\frac{5}{16}$ Inch.	$\frac{3}{4}$ Inch.	1 Inch.
On hand January 1st, 1884.....	632	83	7	26
Received during 1884.....	3,652	60	63	
	<hr/>	<hr/>	<hr/>	<hr/>
Total.....	4,284	143	70	26
Inserted during 1884.....	3,514	61	34	1
On hand January 1st, 1885.....	765	81	36	24
Number paid for by applicants.....	3,481	39	23	1

[illegible]

METER STATEMENT.—Continued.

Statement Showing Revenue per Meter Measurement for the Twelve Months Ending Jan. 1, 1885.

Consumer.	Location.		No.	Size, Inch.	Kind.	Cost.	Revenue.
	No.	Street.	Meters.				
Oppenheimer & Co.....	204 L.	Terrace.....	1 Elev.	hoist	Howard.....		\$ 2.95 1 month.
Oppenheimer & Co.....	98 L.	Terrace.....	1 Elev.	hoist	Howard.....		49.10 6 months.
Pratt, Mrs. S. F.....	388	Delaware Ave.....	1 Elev.	hoist	Howard.....		37.57 6 months.
Pratt & Letchworth.....		Tonawanda.....	1 4		Union.....	\$ 209.00	169.41
Pratt & Letchworth.....	R406	Fifth	1 3		Gem.....	99.00	63.21 7 months.
Powell & Plimpton.....	297	Washington	1 Elev.	hoist	Howard.....		133.95
Plumb, Burdick & Barnard...	637	Clinton	2 {	2	Crown	75.00	471.94
			2 {	2	Gem.....	49.50	
Ramsdell, Sweet & Co.....	215	Washington	1 Elev.	hoist	Howard.....		386.01
Roos, George.....	95	Roos Al.....	1 4		Gem.....	198.00	341.23
Rochevot, George.....	1013	Jefferson.....	2 {	2	Gem.....	49.50	229.57
			2 {	2	Union	63.00	
Rumsey & Co.....	537	Louisiana	1 3		Union	106.50	307.33
Runcie & Co.....	204 L.	Terrace	1 Elev.	hoist	Howard.....		58.38 6 months.
Ruslaender & Co.....	187	Washington	1 Elev.	hoist	Howard.....		58.70 9 months.
Schafer, A.....	132	Lake View Ave ..	1 1½		Union	42.00	78.91
Shepard, S. & Co.....	68	Main.....	1 Elev.	hoist	Howard.....		163.83
Shepard, S. & Co.....	236	Clinton.....	1 2		Union.....	63.00	35.50
Sizer, W. S.....	111	Mill	1 3		Union.....	106.50	75.96 7 months.
Schoellkopf Sons.....	42	Hudson.....	1 3		Union.....	106.50	282.04
Schoellkopf & Co.....	103	Mississippi.....	2 2		Worthington.	103.04	419.11
Sloan, W. W.....	698	Carroll	2 1½		Union.....	84.00	74.27 6 months.
Schuesler, J.....	147	Emslie.....	1 {	1½	Union.. ..	42.00	132.37
			2 {	2	Union.....	126.00	
Schlund & Doll.....	472	Main.....	1 Elev.	hoist	Howard.....		76.80
Thompson, T. E.....	29	Tonawanda.....	1 ¾		Union.....	19.00	1.53 2 months.

Trout, H. G.....	226 Ohio.....	1	1 1/2	Union.....	\$ 42.00	\$ 206.66
Thornton & Chester.....	212 Erie	1	2	Union.....	63.00	59.44
Ullman, D.....	66 Broadway.....	1 Elev.	hoist	Howard.....		167.28
Uebelhoer, J.....	200 Cherry	1	1 1/2	Union.....	42.00	48.88
Vosburg, Whiting & Co.....	304 Main.....	1 Elev.	hoist	Howard.....		83.21
Weller, J. J.....	391 Main.....	1 Elev.	hoist	Howard.....		63.25 11 months.
Wesp, Lautz Bros. & Co.....	242 Oneida.....	2 {	4	Union.....	209.00	1911.14
Weyand, C.....	793 Main.....	2 {	3	Union.....	106.50	
Weller, J. J.....	292 Elm	1	3	Gem.....	99.00	266.15
Wheeler, Joel & Co.....	283 Perry.....	2	2	Gem.....	49.50	
Menker, H. A.....	563 Main.....	1 Elev.	1	Union.....	27.00	76.09 10 months.
Stafford & Co.....	9 Exchange.....	1 Elev.	2	Worthington.	103.04	32.56 6 months.
		1 Elev.	hoist	Howard.....		133.90
		3 {	2	hoist Howard.....		830.47
Ziegele, A.....	Main.....	1 {	2	Gem.....	148.50	
		1 {	3	Gem.....	99.00	458.84
American Glucose Co.....	188 Scott.....	1 {	2	Union.....	63.00	
		2 {	4	Union.....	209.00	
		2 {	10	Gems.....	1980.00	15352.48
American Glucose Co.....	320 Court.....	2 {	2	Union.....	63.00	
		2 {	6	Gem.....	450.00	949.20
B. N. Y. & P. R. R. Co.....	Tank.....	1	6	Gem.....	450.00	699.88
D. L. & W. R. R. Co.....	Tanks.....	2	4	Union.....	418.00	342.23
L. S. & M. S. R. R. Co.....	Tanks, etc.....	3	4	Gem.....	594.00	3744.57
N. Y. I. E. & W. R. R. Co.....	Tanks.....	3	4	Gem.....	594.00	
N. Y. I. E. & W. R. R. Co.....	Tanks.....	1 {	2	Gem.....	49.50	
		1 {	1 1/2	Crown	55.00	
		1 {	1	Crown	30.00	
N. Y. I. E. & W. R. R. Co.....	Tanks.....	1 {	10	Gem.....	990.00	4886.94
		1 {	3	Gem.....	99.00	
N. Y. I. E. & W. R. R. Co.....	Tanks.....	3	4	Union.....	627.00	

METER STATEMENT.--Continued.
Statement Showing Revenue per Meter Measurement for the Twelve Months Ending Jan. 1, 1885.

Consumer.	Location.		No. Meters.	Size, Inch.	Kind.	Cost.	Revenue.
	No.	Street.					
N. Y. C. & H. R. R. Co	Tanks.		1	4	Union.	\$ 209.00	\$ 4400.38
			2	6	Gem.	900 00	136.27
N. Y. C. & St. L. R. R. Co.	Tank.		1	4	Union.	209.00	
						\$14,716.54	\$49,467.12

DISTRIBUTION
OF THE
WATER DEPARTMENT
FOR THE
YEAR 1884.

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ASTOR, LENOX AND
TILDEN FOUNDATIONS.

ASTORIA, OREGON
JAN 10 1907
ASTORIA, OREGON
TILLEN FOR VATIONS.

FIRE HYDRANTS.

The number of Fire Hydrants placed during the year on new line of mains was one hundred and nine, of which thirty-three was on the high service, and seventy-six on the reservoir supply, making the total number in the city on January 1, 1885, one thousand five hundred and fourteen.

HYDRANTS SET ON NEW MAINS.

Location.	System.	Number.
Abbott Road, north side, 1,000 feet east of Smith....	R.	1
Abbott Road, north side, 1,300 feet east of Smith....	R.	1
Berlin street, west side, 615 feet north of High.....	H.	1
Best street, northwest corner of Masten.....	H.	1
Boston alley, southwest corner of Virginia.....	H.	1
Bouck avenue, northwest corner of DeWitt.....	R.	1
Broadway, northwest corner of Oak.....	"	1
Broadway, southeast corner of Elm.....	"	1
Broadway, southwest corner of Milnor.....	"	1
Broadway, southeast corner of Pine.....	"	1
Broadway, southwest corner of Cedar.....	"	1
Broadway, northeast corner of Walnut.....	"	1
Broadway, southwest corner of Hickory.....	"	1
Broadway, southeast corner of Pratt.....	"	1
Broadway, northwest corner of Herman....	"	1
Broadway, northwest corner of Guilford.....	"	1
Broadway, northwest corner of Reed.....	"	1
Broadway, northwest corner of Strauss.....	"	1
Broadway, northwest corner of Fillmore Avenue....	"	1
Central Avenue, east side, 575 feet north of William.	"	1
Chapin Parkway, west side, 510 feet south of Clinton Avenue.....	"	1
Chenango street, northeast corner of Utica.....	"	1

Location.	System.	Number.
Clifford street, northwest corner of Selkirk.....	R.	1
Danforth street, southeast corner of Bradley.....	"	1
Davis street, south side, 160 feet west of Jefferson...	"	1
Delaware avenue, east side, 494 feet south of Chapin Place.	H.	1
Delaware avenue, southeast corner of Chapin Place..	H.	1
DeWitt street, east side, 460 feet north of Forest Ave.	R.	1
Dodge street, south side, 360 feet east of Ellicott....	H.	1
Eaton street, north side, 350 feet east of Michigan..	H.	1
Eighteenth street, southeast corner of Massachusetts.	R.	1
Elk Street, southwest corner of Winona.....	R.	1
Erie Co. Alms House, southwest corner of Insane Department.....	H.	1
Erie Co. Alms House, northwest corner of Insane Department.....	"	1
Erie Co. Alms House, near northeast corner of Insane Department.....	"	1
Erie Co. Alms House, near northwest corner of Poor Department.....	"	1
Ferry street, northwest corner of Barton	R.	1
Ferry street, northeast corner of Herkimer	"	1
Ferry street, northeast corner of Grant.....	"	1
Ferry street, northwest corner of Preston	"	1
Ferry street, northeast corner of Hoyt	"	1
Ferry street, northwest corner of Webster.....	"	1
Ferry street, northwest corner of Howard avenue.....	H.	1
Ferry street, northwest corner of Ashland avenue.....	"	1
Ferry street, northwest corner of Elmwood avenue ...	"	1
Ferry street, north side, 510 feet east of Elmwood avenue.....	"	1
Fourteenth street, southwest corner of Hampshire...	R.	1
Fulton street, southeast corner of Hamburg.....	"	1
Fulton street, southwest corner of L. S. & M. S. R. R.	"	1

Location.	System.	Number.
Ganson street, northeast corner of South Michigan..	R.	1
Ganson street, east side, 290 feet north of S. Michigan	"	1
Ganson street, east side, 620 feet north of S. Michigan	"	1
Ganson street, east side, 950 feet north of S. Michigan	"	1
Ganson street, east side, 220 feet south of S. Michigan	"	1
Ganson street, east side, 420 feet south of S. Michigan	"	1
Ganson street, east side, 620 feet south of S. Michigan	"	1
Ganson street, east side, 820 feet south of S. Michigan	"	1
Ganson street, east side, 1,020 feet south of S. Michigan	"	1
Ganson street, east side, 1,220 feet south of S. Michigan	"	1
Ganson street, east side, 1,420 feet south of S. Michigan	"	1
Ganson street, east side, 1,620 feet south of S. Michigan	"	1
Ganson street, east side, 1,820 feet south of S. Michigan	"	1
Ganson street, east side, 2,020 feet south of S. Michigan	"	1
Ganson street, east side, 2,220 feet south of S. Michigan	"	1
Ganson street, east side, 2,420 feet south of S. Michigan	"	1
Ganson street, east side, 2,620 feet south of S. Michigan	"	1
Ganson street, east side, 3,100 feet south of S. Michigan	"	1
Ganson street, west side, in yard of Island R. R. Co...	"	1
Grape street, southwest corner of Best.	H.	1
Hampshire street, southwest corner of Fargo Avenue.	R.	1
Hampshire street, southwest corner of West Avenue..	"	1
Hampshire street, southwest corner of Plymouth Ave..	"	1
Herman street, west side, 465 feet north of Broadway	"	1
Herman street, west side, 930 feet north of Broadway	"	1
Herman street, southwest corner of North,	"	1
Howard street, southwest corner of Thomas,	"	1
Jefferson street, southwest corner of Dodge,	H.	1
Jefferson street, southwest corner of Northampton...	"	1
Jefferson street, southwest corner of Barr,	"	1
Johnson street, southwest corner of North,	R.	1
Johnson street, southwest corner of High,	"	1
Laurel street, southwest corner of Masten,	H.	1

Location.	System.	Number.
Laurel street, south side, 345 feet west of Masten....	H.	1
Main street, east side, 600 feet north of Amherst....	"	1
Main street, east side, 1,200 feet north of Amherst...	"	1
Main street, east side, 1,800 feet north of Amherst...	"	1
Main street, east side, 2,800 feet north of Amherst...	"	1
Main street, southeast corner of Poor House Lot...	"	1
Main street, east side, 900 feet south of Poor House Lot.....	"	1
Main street, east side, 2,100 feet south of Poor House Lot.....	"	1
Masten street, west side, 385 feet north of Ferry....	"	1
Masten street, west side, 810 feet north of Ferry....	"	1
Miami street, northwest corner of Hamburg.....	R.	1
Nineteenth street, northeast corner of Rhode Island.	"	1
Nineteenth street, southeast corner of Massachusetts.	"	1
Oneida street, south side, 110 feet west of Smith....	"	1
Riley street, northwest corner of Masten.....	H.	1
Seventh street, northeast corner of Massachusetts...	"	1
Sherman street, southwest corner of North..	R.	1
Sherman street, southwest corner of High.....	"	1
Sherman street, east side, 435 feet north of Broadway	"	1
Sherman street, east side, 870 feet north of Broadway	"	1
Stanton street, west side, 285 feet north of Howard..	"	1
St. John's Place, northwest corner of Wadsworth....	H.	1
S. Michigan street, south side, 220 feet east of Ganson	R.	1
Terrace, northwest corner of Evans.....	"	1
Terrace, southeast corner of Eagle.....	"	1
Walter street, southwest corner of Perry.	"	1
Wilkeson street, southwest corner Sixth.....	"	1
Total.....		109

On High Service.....	33	
On Reservoir Service.....	76	
	—	109
Set in in previous years.....	1,407	
Abandoned in 1884.....	2	
	— —	1,405
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Total Hydrants in City December 31, 1884...		1,514

NEW HYDRANTS PUT IN TO REPLACE OLD ONES.

Location.	System.	Number.
Adams street, west side, 375 feet south of Brown....	R.	1
Adams street, west side, 415 feet south of Beckwith..	"	1
Best street, southeast corner of Berlin.....	H.	1
Best street, southeast corner of Fox.....	"	1
Best street, southeast corner of Fillmore ave.....	"	1
Brown street, southwest corner of Madison.....	R.	1
Brown street, southwest corner of Monroe.....	"	1
Butler street, south side, 600 ft. west of Delaware ave.	H.	1
Butler street, south side, 1,200 feet west of Delaware Ave.....	"	1
Butler street, southeast corner of Elmwood Ave.....	"	1
Butler street, southeast corner of Ashland Ave.....	"	1
Butler street, southeast corner of Howard.....	"	1
Butler street, southeast corner of Richmond Ave....	"	1
Carlton street, northeast corner of Michigan.....	"	1
Carlton street, northeast corner of Mulberry.....	"	1
Carroll street, south side, 320 feet east of Michigan..	R.	1
Clinton street, south side, 700 feet east of Fillmore Ave.....	"	1
College street, northeast corner of Allen.....	H.	1
College street, southeast corner of North.....	"	1

Location.	System.	Number.
Connecticut street, southwest corner of Seventh.....	H.	1
Connecticut street, southwest corner of Richmond Ave.	"	1
Cottage street, southwest corner of Hudson.....	"	1
Delaware Ave., east side, 320 feet south of Tupper..	R.	1
Delaware Ave., east side, 250 feet north of Tupper..	H.	1
Delaware Ave., northwest corner of Edward.....	"	1
Delaware Place, north side, 350 feet west of Delaware Ave.....	"	1
East Market street, west side, 240 feet south of Scott	R.	1
East Market street, west side, 480 feet south of Stott	"	1
Efner street, west side, 315 feet south of Maryland..	"	1
Efner street, northwest corner of Maryland.....	"	1
Elk street, northwest corner of Mississippi.....	"	1
Elk street, south side, 200 feet east of Moore.....	"	1
Elk street, southwest corner of Chicago.....	"	1
Elk street, south side, 300 feet east of Chicago.....	"	1
Elk street, south side, 400 feet east of Hamburg....	"	1
Elk street, southwest corner of Fitzgerald.....	"	1
Elm street, southeast corner of Vine Alley.....	"	1
Elm street, east side, 300 feet north of Broadway....	"	1
Emslie street, east side, 285 feet south of William....	"	1
Ferry street, north side, 510 feet west of Delaware Ave.....	H.	1
Ferry street, north side, 1,020 feet west of Delaware Ave.....	"	1
Ferry street, northeast corner of Niagara.....	R.	1
Fifth street, west side, 315 feet south of Carolina....	"	1
Fifth street, southwest corner of Maryland.....	"	1
Fifth street, west side, 315 feet south of Hudson.....	"	1
Fifth street, northwest corner of Root.....	"	1
Forest Ave., south side, 250 feet west of Grant.....	"	1
Forest Ave., southwest corner of Hoyt.....	"	1
Forest Ave., southwest corner of Lincoln Parkway...	"	1

Location.	System.	Number.
Fourteenth street, southwest corner of Porter Ave.,...	H.	1
Fourth street, southwest corner of Maryland.....	R.	1
Franklin street, southeast corner of Virginia.....	H.	1
Franklin street, southeast corner of North.....	"	1
Fremont Place, southeast corner of North.....	"	1
Gelston street, northwest corner of of Auburn Ave....	R.	1
Genesee street, north side, 120 feet west of Erie canal	"	1
Goodell street, southeast corner of Boston Alley.....	H.	1
Henry street, southwest corner of Terrace.....	R.	1
High street, southwest corner of Oak.....	H.	1
High street, southeast corner of Elm.....	"	1
Krettner street, southeast corner of William.....	R.	1
Linwood Ave., east side, 485 feet north of Utica.....	H.	1
Louisiana street, east side, 315 feet south of Hamburg canal	R.	1
Louisiana street, southeast corner of Perry.....	"	1
Mackinaw street, southeast corner of Tennessee.....	"	1
Main street, east side, 100 feet north of Ohio.....	"	1
Main street, west side, 220 feet north of Exchange...	"	1
Main street, northeast corner of Dodge.....	H.	1
Mariner street, southeast corner of North.....	"	1
Mariner street, east side, 470 feet south of North....	"	1
Michigan street, east side, 300 feet north of Elk.....	R.	1
Michigan street, southeast corner of South Division.	"	1
Michigan street, east side, 250 feet north of Genesee.	"	1
Michigan street, east side, 110 feet north of Goodell.	H.	1
Michigan street, east side, 250 feet north of Burton Alley	"	1
Michigan street, northeast corner of Virginia.....	"	1
Michigan street, east side, 300 feet south of Carlton.	"	1
Mississippi street, east side, 330 feet south of Perry..	R.	1
North Division street, north side, 260 feet east of Chestnut	R.	1

Location.	System.	Number.
Niagara street, northwest corner of Vermont.....	H.	1
Oak street, west side, 290 feet north of Carlton.....	H.	1
Ohio street, northeast corner of Indiana.....	R.	1
Park street, northwest corner of Virginia.....	H.	1
Park street, southeast corner of North... ..	"	1
Pennsylvania street, southeast corner of Prospect Ave.	"	1
Porter Ave., southeast corner of Seventh.....	"	1
Red Jacket street, northwest corner of Fulton.....	R.	1
School street, northwest corner of Niagara.....	"	1
Scott street, north side, 450 feet east of Washington.	"	1
Scott street, south side, 450 feet west of Chicago....	"	1
Scott street, southwest corner of Chicago.....	"	1
Scott street, northeast corner of Heacock.....	"	1
Seventh street, southeast corner of Vermont.....	H.	1
Sixth street, southeast corner of Pennsylvania.....	R.	1
South Division street, southwest corner of Cedar....	"	1
Spring street, west side, 420 feet north of William...	"	1
Summer street, north side, 400 feet west of Delaware Ave.....	H.	1
Terrace, west side, 200 feet north of Church.....	R.	1
Walnut street, west side, 375 feet north of Broadway.	"	1
Walnut street, east side, 360 feet north of Sycamore..	"	1
Washington street, southeast corner of Carroll.....	"	1
Washington street, southwest corner of Seneca.....	"	1
Washington street, southeast corner of South Division	"	1
Watson street, west side, 450 feet north of William..	"	1
Watson street, southwest corner of Peckham.....	"	1
West Ave., northeast corner of Carolina.....	"	1
William street, northeast corner of Michigan.....	"	1
William street, southeast corner of Stanton.....	"	1
York street, northwest corner of Plymouth Ave.....	H.	1
Total.....		109

THE BUFFALO CITY WATER WORKS.

III

HYDRANTS ABANDONED IN 1884.

Location.	System.	Number.
Lloyd street, southwest corner of Water.....	R.	1
Washington street, east side, 300 feet north of Carlton.	H.	1
		—
Total.....		2

DRINKING FOUNTAINS.

Street.	Location.	Number.
Main.....	Northwest corner of Seneca.....	1
"	" " Erie.....	1
"	East side, 80 feet north of Clinton.....	1
"	Southeast corner of Huron.....	1
		—
Total.....		4

HORSE FOUNTAINS.

Street.	Location.	Number.
Broadway.....	Southwest corner of Milnor.....	1
Elk.....	Opposite West Market.....	1
"	Southwest corner of Hamburg.....	1
Genesee.....	Northeast corner of Ellicott.....	1
Main.....	Corner of Ferry.....	1
"	" " Steele.....	1
Maryland....	" " Fifth.....	1
Niagara.....	West side, between Franklin and Eagle...	1
"	Northeast corner of Prospect Ave.....	1
"	Corner of Clinton.....	1
"	" " Amherst.....	1
"	Northeast corner of Austin.....	1

Street.	Location.	Number.
Niagara.....	Corner Hertel Ave.....	1
Seneca.....	At junction with Swan.....	1
York.....	Corner of Thirteenth.....	1
Total.....		— 15

FREE HYDRANTS.

Location.	System.	Number.
Chicago, northwest corner of Mackinaw.....	R.	1
Chicago, southeast corner of Elk.....	"	1
Chicago, southeast corner of Fulton.....	"	1
Elk, northeast corner of Columbia.....	"	1
Elk, southeast corner of Moore.....	"	1
Elk, southeast corner of Hamburg.....	"	1
Exchange, north side, between Jefferson and Ham- burgh.....	"	1
Exchange, northwest corner of Heacock.....	"	1
Fifth, northwest corner of Georgia.....	"	1
Fourth, northeast corner of Carolina.....	"	1
Genesee, northwest corner of Fox.....	"	1
Louisiana, east side, between Ohio and South.....	"	1
Louisiana, northeast corner of Sandusky.....	"	1
Mackinaw, southeast corner of Tennessee.....	"	1
Mackinaw, southwest corner of Vandalia.....	"	1
Perry, southwest corner of Illinois.....	"	1
Perry, southeast corner of Hamburg.....	"	1
Perry, southwest corner of Hayward.....	"	1
Scott, southwest corner of Illinois.....	"	1

THE BUFFALO CITY WATER WORKS.

113

Location.	System.	Number.
Selkirk, east side, between Exchange and Perry.....	R.	1
William, southeast corner of Smith.....	"	1
		—
Total.....		21

Schedule of Water Pipe laid, giving Location, Size of Pipe, and on what System.

EAST SIDE.

Street.	From.	To	Size of Pipe. Inches.	System.	Location of Pipe.
Abbott Road.....	Smith.....	1350 feet easterly.....	6	R	26 ft. n. of s. line.
Adams.....	Clinton.....	William.....	6	R	22 ft. e of w. line.
Adams.....	William.....	Brown.....	20	R	19 ft. e. of w. line.
Adams.....	Brown.....	Genesee.....	6	R	14 ft. w. of e. line.
Alabama.....	Seneca.....	Carroll.....	4	R	16 ft. e. of w. line.
Alabama.....	Mackinaw.....	300 feet southerly.....	6	R	18 ft. w. of e. line.
Ash.....	Genesee.....	Broadway.....	4	R	33 ft. w. of e. line.
Babcock.....	William.....	Clinton.....	6	R	45 ft. w. of e. line.
Beckwith.....	Adams.....	Sycamore.....	6	R	20 ft. n. of s. line.
Beech.....	Virginia.....	Carlton.....	6	R	36 ft. w. of e. line.
Bennett.....	William.....	Broadway.....	4	R	35 ft. e. of w. line.
Berlin.....	High.....	Best.....	6	H	26 ft. e. of w. line.
Best.....	Main.....	Masten.....	6	H	25 ft. s. of n. line.
Best.....	Jefferson.....	Fox.....	10	H	24 ft. n. of s. line.
Best.....	Fox.....	Genesee.....	8	H	23 ft. n. of s. line.
Blossom alley.....	Huron.....	Broadway.....	4	R	15 ft. e. of w. line.
Bond.....	Clinton.....	Howard.....	4	R	18 ft. w. of e. line.
Boston alley.....	Tupper.....	Virginia.....	4	H	7 ft. e. of w. line.
Bristol.....	Spring.....	Jefferson.....	6	R	37 ft. s. of n. line.
Bristol.....	Emslie.....	Bond.....	4	R	44 ft. s. of n. line.
Broadway.....	Lafayette.....	Ellicott.....	6	R	50 ft. s. of n. line.
Broadway.....	Ellicott.....	Pratt.....	16	R	50 ft. s. of n. line.
Broadway.....	Pratt.....	Fillmore avenue.....	10	R	{ 35 ft. s. of n. line 50 ft. s. of n. line
Broadway.....	Sherman.....	Smith.....	4	R	5 ft. n. of s. line.
Brown.....	Adams.....	Jefferson.....	20	R	20 ft. n. of s. line.

Bundy alley.....	Sycamore.....	350 feet northerly.....	4	R	12 ft. w. of e. line.
Burton alley.....	Ellicott.....	Boston Alley.....	4	H	11 ft. s. of n. line.
Burton alley.....	Ralph alley.....	Michigan.....	4	H	16 ft. n. of s. line.
Camp.....	Genesee.....	Sycamore.....	6	R	30 ft. w. of e. line.
Carlton.....	Main.....	Mulberry.....	6	H	23 ft. s. of n. line.
Carlton.....	Lemon.....	Genesee.....	6	H	23 ft. s. of n. line.
Carroll.....	Washington.....	200 feet west of Chicago.....	4	R	33 ft. n. of s. line.
Carroll.....	200 feet west of Chicago.....	160 ".....	1½	R	33 ft. n. of s. line.
Carroll.....	Chicago.....	Louisiana.....	6	R	18 ft. s. of n. line.
Carroll.....	Louisiana.....	Alabama.....	4	R	18 ft. s. of n. line.
Carroll.....	Heacock.....	400 feet east of Van Rens.....	4	R	21 ft. s. of n. line.
Cayuga.....	Jefferson.....	660 feet easterly.....	6	H	32 ft. n. of s. line.
Cedar.....	Swan.....	Broadway.....	6	R	39 ft. w. of e. line.
Central avenue.....	William.....	975 feet northerly.....	6	R	20 ft. w. of e. line.
Center.....	Seneca.....	Swan.....		R	17 ft. w. of e. line.
Cherry.....	Michigan.....	Virginia.....	20	R	24 ft. n. of s. line.
Chicago.....	Seneca.....	100 feet northerly.....	1½	R	
Chicago.....	Carroll.....	Carroll.....	4	R	28 ft. e. of w. line.
Chicago.....	Exchange.....	Exchange.....	6	R	
Chicago.....	Exchange.....	Ohio.....	16	R	41 ft. e. of w. line.
Chippewa.....	Main.....	Ellicott.....	6	H	26 ft. n. of s. line.
Clifford.....	Smith.....	Selkirk.....	6	R	25 ft. n. of s. line.
Clinton.....	Main.....	Madison.....	36	R	25 ft. s. of n. line.
Clinton.....	Washington.....	Oak.....	6	H	43 ft. s. of n. line.
Clinton.....	Oak.....	Union.....	6	R	42 ft. s. of n. line.
Clinton.....	Union.....	Emslie.....	10	R	24 ft. n. of s. line.
Clinton.....	Emslie.....	Babcock.....	6	R	24 ft. n. of s. line.
Columbia.....	Perry.....	Elk.....	6	R	14 ft. w. of e. line.
Columbia.....	Ohio.....	Buffalo river.....	16	R	
Cypress.....	Michigan.....	Pine.....	6	R	26 ft. s. of n. line.
Davis.....	Genesee.....	Jefferson.....	4	R	{ 26 ft. w. of e. line / 20 ft. n. of s. line

Schedule of Water Pipe laid, giving Location, Size of Pipe, and on what System.

Street.	From.	To.	Size of Pipe. Inches.	System.	Location of Pipe.
Depot.....	William	North line of lot 58.....	6	R	28 ft. w. of e. line.
Dodge	Main.....	Masten	6	H	21 ft. n. of s. line.
Eagle.....	Washington.....	Emslie	6	R	40 ft. n. of s. line.
Eagle.....	Bond.....	Smith.....	6	R	24 ft. s. of n. line.
East Bennett..	Clinton.....	450 feet northerly.....	2	R	
East Market ..	Scott	Perry	4	R	
East Market ..	Perry	Fulton	6	R	19 ft. w. of e. line.
Eaton.....	Michigan ..	400 feet easterly.....	6	H	38 ft. n. of s. line.
Elk.....	Ohio.....	Mississippi.....	4	R	
Elk.....	Columbia.....	Michigan	6	R	38 ft. s. of n. line.
Elk.....	Michigan.....	Babcock.....	10	R	40 ft. s. of n. line.
Elk.....	Babcock.....	500 feet easterly.....	6	R	39 ft. s. of n. line.
Ellicott	South Division.....	Eagle.....	4	R	
Ellicott	Eagle.....	Clinton.....	4	H	40 ft. w. of e. line.
Ellicott	Seneca.....	Swan	4	R	39 ft. w. of e. line.
Ellicott	Broadway.....	Genesee.....	4	R	24 ft. e. of w. line.
Ellicott	Chippewa	550 feet northerly.....	4	H	15 ft. w. of e. line.
Ellicott	550 feet north of Chippewa	Tupper.....	10	H	15 ft. w. of e. line.
Ellicott	Tupper.....	600 feet southerly.....	4	R	12 ft. w. of e. line.
Ellicott	Tupper.....	Goodell.....	10	H	14 ft. w. of e. line.
Ellicott	Goodell.....	Goodrich	6	H	27 ft. e. of w. line.
Ellicott	Best	Dodge	6	H	21 ft. e. of w. line.
Elm	North Division.....	Broadway	4	R	41 ft. w. of e. line.
Elm	Broadway	Sycamore.....	6	R	26 ft. w. of e. line.
Elm	Sycamore.....	Genesee.....	4	R	40 ft. e. of w. line.
Elm	Genesee	Tupper	6	R	21 ft. e. of w. line.

Elm	Tupper.....	High	6	H	40 ft. w. of e. line.
Elm	North.....	Best	6	H	30 ft. e. of w. line.
Emslie.....	Seneca.....	Broadway	6	R	31 ft. e. of w. line.
Euclid Place.	Elk.....	180 feet southerly.....	4	R	35 ft. e. of w. line.
Exchange	Main.....	Jefferson	20	R	23 ft. n. of s. line.
Exchange	Washington	Michigan.....	6	R	32 ft. n. of s. line.
Exchange	Jefferson	Heacock.....	12	R	32 ft. s. of n. line.
Exchange	Jefferson	Heacock.....	4	R	
Ferry.....	Main	600 feet east of Jefferson..	4	II	
Fillmore avenue.....	Seneca	Peckham	16	R	40 ft. s. of n. line.
Folsom	Michigan.....	Chicago.....	6	R	18 ft. e. of w. line.
Folsom	Chicago	South Cedar.....	4	R	25 ft. s. of n. line.
Folsom	South Cedar.....	Jefferson	6	R	14 ft. n. of s. line.
Fox	Genesee.....	Sycamore.....	6	R	14 ft. n. of s. line.
Fulton	Michigan.....	Louisiana	6	R	40 ft. e. of w. line.
Fulton	Hamburgh	L. S. & M. S. R. R.....	6	R	36 ft. s. of n. line.
Ganson	South Michigan.....	320 feet northerly.....	16	R	24 ft. n. of s. line.
Ganson	South Michigan.....	1760 feet southerly.....	16	R	7 ft. w. of e. line.
Ganson	320 ft. north of S. Michigan	640 feet northerly.....	10	R	10 ft. w. of e. line.
Genesee.....	Main	Oak	6	H	7 ft w. of e. line.
Genesee.....	Oak.....	Jefferson	6	R	61 ft. s. of n. line.
Genesee.....	Jefferson	Best	6	R	39 ft. s. of n. line.
George.....	Mortimer.....	Jefferson	10	R	26 ft. n. of s. line.
German alley.....	Sycamore.....	Genesee.....	4	R	12 ft. n. of s. line.
Glenwood avenue.....	Main	Purdy.....	4	R	15 ft. e. of w. line.
Goodell	Main	Michigan.....	4	H	
Goodell	Michigan	Cherry.....	12	H	40 ft. s. of n. line.
Goodell alley.....	Tupper	Goodell	10	R	26 ft. n. of s. line.
Goodrich.....	Main	Michigan.....	4	H	7 ft. e. of w. line.
Granger.....	Chicago.....	Ohio Basin Slip.....	6	H	40 ft. n. of s. line.
Grape.....	Cherry.....	Virginia	4	R	24 ft. s. of n. line.
Grape.....	High	Best	6	R	38 ft. w. of e. line.
			6	II	39 ft. w. of e. line.

Schedule of Water Pipe laid, giving Location, Size of Pipe, and on what System.

Street.	From.	To	Size of Pipe Inches.	System.	Location of Pipe.
Green.	Michigan.	Beak	4	R	30 ft. n. of s. line.
Grey.	Broadway.	Genesee.	6	R	28 ft. w. of e. line.
Hamburgh.	Elk.	Fulton.	6	R	23 ft. w. of e. line.
Hayward.	Elk.	Fulton.	6	R	23 ft. e. of w. line.
Hayward.	Perry.	250 feet northerly.	6	R	18 ft. w. of e. line.
Heacock.	Seneca.	Scott	4	R	20 ft. e. of w. line.
Heacock.	Exchange.	Perry.	12	R	18 ft. w. of e. line.
Herman.	Broadway.	North.	6	R	30 ft. w. of e. line.
Hickory.	Cherry.	Genesee.	10	R	23 ft. e. of w. line.
Hickory.	Genesee.	Eagle.	6	R	40 ft w. of e. line.
High	Main	Jefferson	10	H	28 ft. s. of n. line.
High	Jefferson	Grey	6	H	37 ft. n. of s. line.
Hinckley.	Spring	Mortimer	4	R	34 ft. s. of n. line.
Hollister	Spring	Mortimer.	6	R	16 ft. s. of n. line.
Howard.	Jefferson	Madison	6	R	20 ft. s. of n. line.
Howard.	Monroe	Adams.	6	R	15 ft. n. of s. line.
Howard.	Madison	Monroe.	4	R	16 ft. n. of s. line.
Howard.	Adams.	Sherman	4	R	37 ft. s. of n. line.
Howard.	Madison	Metcalfe	36	R	
Howard.	Sherman	Shumway	6	R	39 ft. s. of n. line.
Howard.	Smith.	Kaze	6	R	16 ft. n. of s. line.
Howard.	Shumway.	Smith.	4	R	36 ft. s. of n. line.
Howard.	Metcalfe.	Rabcock.	12	R	39 ft. s. of n. line.
Howard.	Metcalfe.	425 feet westerly.	4	R	33 ft. s. of n. line.
Indiana	Perry	Mary		R	
Jefferson	Exchange	William	20	R	21 ft. e. of w. line.

Jefferson	William	100 feet north of George..	6	R	38 ft. w. of e. line..
Jefferson	100 feet north of George..	Sycamore.....	4	R	
Jefferson	100 feet north of George..	400 feet north of George..	2	R	
Jefferson	Sycamore.....	Davis	4	R	
Jefferson	Davis	Brown	6	R	35 ft. w. of e. line.
Jefferson	Brown	Virginia.....	20	R	30 ft. e. of w. line.
Jefferson	Virginia.....	High	6	H	30 ft. e. of w. line.
Jefferson	High	Rest	10	H	28 ft. w. of e. line.
Jefferson	Best	Ferry	16	H	43 ft. w. of e. line.
Johnson.....	Broadway.....	North	6	R	45 ft. w. of e. line.
					{ 8 ft. e. of w. line.
Kane	Sycamore.....	425 feet northerly.....	4	R	{ 8 ft. w. of e. line.
Kane	Genesee..	425 feet southerly.....	6	R	19 ft. e. of w. line.
Krettner....	Howard	150 feet north of Lovejoy..	6	R	33 ft. w. of e. line.
Lafayette....	Washington.....	Broadway.....	6	R	
Lemon.....	Cherry	North	6	H	23 ft. e. of w. line.
Lewis.	William	Howard.....	6	R	21 ft. e. of w. line.
Laurel	Michigan.....	Masten.....	6	H	27 ft. s. of n. line.
Locust	Cherry	North	6	H	28 ft. e. of w. line.
Lord	Clinton.....	Eagle.....	6	R	
Louisiana.....	Seneca	Hamburgh canal.....	6	R	28 ft. w. of e. line.
Louisiana.....	Exchange	Ohio.....	10	R	27 ft. w. of e. line.
Lovejoy.....	Emslie.	Sherman	6	R	
Lutheran alley.....	Broadway	William	4	R	11 ft. e. of w. line.
Mackinaw	Louisiana.....	Hamburgh	6	R	25 ft. n. of s. line.
Madison	Eagle	Brown	6	R	21 ft. w. of e. line.
Madison	Clinton	Howard.....	36	R	
Main	Ohio.....	Prime.....	6	R	50 ft. w. of e. line.
Main	Prime.....	Exchange	10	R	49 ft. w. of e. line.
Main	Exchange	North Division.....	12	R	49 ft. w. of e. line.
Main	North Division.....	Goodell	12	H	48 ft. w. of e. line.
Main	Goodell	Allen	16	H	47 ft. e. of w. line.

Schedule of Water Pipe laid, giving Location, Size of Pipe, and on what System.

Street.	From.	To	Size of Pipe. Inches.	System.	Location of Pipe.
Main	Allen	Ferry	20	H	33 ft. w. of e. line.
Main	Ferry	South line of Poorhouse lot	16	H	16 ft. w. of e. line.
Maple	Cherry	Virginia	6	R	26 ft. w. of e. line.
Maple	Virginia	North	6	H	28 ft. e. of w. line.
Mark	William	Gay	4	R	24 ft. w. of e. line.
Masten	Utica	Glenwood avenue	6	H	41 ft. w. of e. line.
Masten	Ferry	950 feet northerly	6	H	44 ft. w. of e. line.
Mathews alley	Jefferson	Mortimer	4	R	12 ft. n. of s. line.
Metcalfe	Howard	William	36	R	
Metcalfe	Howard	William	6	R	33 ft. w. of e. line.
Miami	Louisiana	Hamburgh	6	R	18 ft. s. of n. line.
Miami	Ohio	Chicago	16	R	
Michigan	Ohio	Genesee	10	R	28 ft. w. of e. line.
Michigan	Genesee	Goodell	12	R	24 ft. e. of w. line.
Michigan	120 feet north of Goodell	High	6	H	27 ft. e. of w. line.
Michigan	High	Best	10	H	32 ft. e. of w. line.
Michigan	Best	Ferry	6	H	42 ft. w. of e. line.
Milnor	Broadway	William	6	R	30 ft. w. of e. line.
Mississippi	Ohio	Elk	4	R	
Mississippi	Elk	Mary	2	R	
Mississippi	Mary	150 feet north of Perry	4	R	
Mohawk	Washington	Ellicott	6	R	31 ft. n. of s. line.
Monroe	Clinton	Brown	6	R	34 ft. w. of e. line.
Mortimer	Cherry	Broadway	6	R	32 ft. w. of e. line.
Mortimer	William	495 feet north of Peckham	6	R	32 ft. w. of e. line.
Mulberry	Goodell	Carlton	6	H	39 ft. w. of e. line.

Mulberry.....	High	300 feet northerly.....	6	H	27 ft. e. of w. line.
Nichols alley.....	Seneca.....	200 feet northerly.....	4	R	7 ft. e. of w. line.
North.....	Main	Michigan.....	6	H	35 ft. s. of n. line.
North.....	Grape.....	Orange.....	6	H	39 ft. s. of n. line.
North Division.....	Ellicott.....	Cedar.....	4	R	27 ft. n. of s. line.
North Division.....	Cedar.....	N. Y. C. & H. R. R. R.....	6	R	24 ft. n. of s. line.
Oak.....	South Division.....	Broadway.....	4	R	40 ft. w. of e. line.
Oak.....	Broadway	Sycamore.....	6	R	
Oak.....	Sycamore.....	Tupper.....	4	R	16 ft. e. of w. line.
Oak.....	Genesee.....	Tupper.....	12	R	13 ft. w. of e. line.
Oak.....	Tupper.....	Goodell.....	6	H	13 ft. w. of e. line.
Oak.....	Goodell	Virginia.....	4	H	25 ft. e. of w. line.
Oak.....	Virginia.....	High	6	H	29 ft. e. of w. line.
Oak.....	North.....	Best	6	H	15 ft. w. of e. line.
Ohio.....	Main	Elk.....	6	R	
Ohio.....	Mississippi	800 feet south of Chicago.....	6	R	40 ft. n. of s. line.
Ohio.....	Miami.....	Columbia.....	16	R	
Oneida	Emslie.....	Smith.....	6	R	24 ft. n. of s. line.
Orange	Cherry	High	6	H	25 ft. e. of w. line.
Orlando	Elk	350 feet southerly.....	4	R	18 ft. e. of w. line.
Peach	Cherry	Carlton.....	6	R	39 ft. w. of e. line.
Peach.....	Carlton.....	High	6	H	27 ft. e. of w. line.
Peach.....	North.....	Best	6	H	34 ft. w. of e. line.
Peckham.....	Jefferson.....	Fillmore ave.....	6	R	33 ft. n. of s. line.
Perry.....	Main.....	Mississippi	6	R	
Perry.....	Columbia.....	Michigan.....	6	R	46 ft. s. of n. line.
Perry.....	Marvin.....	Heacock	6	R	29 ft. n. of s. line.
Pine.....	Eagle.....	William.....	6	R	20 ft. w. of e. line.
Pine.....	William	Sycamore.....	4	R	26 ft. w. of e. line.
Potter.....	William.....	Broadway	6	R	18 ft. e. of w. line.
Pratt.....	Clinton	William.....	4	R	37 ft. w. of e. line.
Pratt.....	Eagle.....	Clinton.....	6	R	25 ft. e. of w. line.

Schedule of Water Pipe laid, giving Location, Size of Pipe, and on what System.

Street.	From.	To	Size of Pipe. Inches.	System.	Location of Pipe.
Pratt.....	William	Genesee.....	6	R	27 ft. e. of w. line.
Puffer	Main.....	Jefferson	6	H	38 ft. s. of n. line.
Ralph alley.....	Burton alley.....	Virginia.....	4	H	16 ft. e. of w. line.
Randall.....	William	200 feet southerly.....	1½	R	
Red Jacket.....	Perry	Fulton.....	6	R	14 ft. e. of w. line.
Riley	Masten	450 feet west of Michigan..	6	H	17 ft. s. of n. line.
Rose.....	Virginia.....	Carlton	6	R	42 ft. e. of w. line.
Scott.....	Main.....	Illinois.....	4	R	
Scott.....	Michigan.....	Chicago.....	12	R	
Scott.....	Michigan.....	520 feet easterly.....	4	R	
Scott.....	Chicago	520 feet westerly.....	6	R	
Selkirk.....	Seneca	450 feet south of Exchange	4	R	
Selkirk.....	Elk	Perry	6	R	28 ft. e. of w. line.
Seneca	Main.....	Washington	6	H	18 ft. e. of w. line.
Seneca	Main.....	Selkirk.....	6	R	44 ft. n. of s. line.
Seymour	Emslie.....	Hagerman.....	6	R	36 ft. s. of n. line.
Sherman	Howard	North	4	R	22 ft. n. of s. line.
Shumway.....	William.....	Peckham	6	R	20 ft. e. of w. line.
Smith.....	Abbott road.....	Elk.....	6	R	33 ft. w. of e. line.
Smith.....	Elk	Seneca	10	R	20 ft. w. of e. line.
South	Louisiana	Ohio.....	16	R	18 ft. e. of w. line.
South Cedar.....	Seneca	Swan	6	R	22 ft. s. of n. line.
South Division.....	Main	Michigan.....	4	R	32 ft. e. of w. line.
South Division.....	Michigan.....	Cedar.....	6	R	24 ft. n. of s. line.
South Division.....	Cedar.....	N. Y. C. R. R.....	4	R	
South Division.....	Emslie	N. Y. C. R. R.....	6	R	24 ft. n. of s. line.

Spring	Genesee	Broadway	4	R	39 ft. e. of w line.
Spring	Broadway	William	8	R	39 ft. w. of e. line.
Spring	William	Clinton	6	R	40 ft. e. of w. line.
Spring	Clinton	Eagle	4	R	
Spruce	Cherry	Broadway	6	R	35 ft. w. of e. line.
Stanton	Howard	Peckham	6	R	31 ft. w. of e. line.
Stanton	Lovejoy	Broadway	6	R	18 ft. w. of e. line.
St. Paul	Main	300 feet easterly	4	H	18 ft. s. of n. line.
Superior	Spring	Jefferson	6	R	22 ft. n. of s. line.
Swan	Main	Ellicott	10	R	27 ft. s. of n. line.
Swan	Ellicott	Cedar	10	R	26 ft. n. of s. line.
Swan	Cedar	Seneca	6	R	39 ft. s. of n. line.
Sycamore	Oak	Spring	10	R	42 ft. n. of s. line.
Sycamore	Spring	Jefferson	4	R	4 ft. s. of n. line
Sycamore	Jefferson	Beckwith	6	R	2 ft. n. of s. line
Sycamore	Adams	Johnson	6	R	41 ft. n. of s. line.
Tupper	Main	Washington	12	H	24 ft. s. of n. line.
Tupper	Main	Michigan	20	R	16 ft. n. of s. line.
Tupper	Washington	Michigan	6	R	17 ft. n. of s. line.
Tousey	Sycamore	Champlin	4	R	25 ft. w. of e. line.
Union	Eagle	Clinton	4	R	17 ft. e. of w. line.
Union	Clinton	William	6	R	17 ft. w. of e. line.
Utica	Main	Jefferson	6	H	26 ft. n. of s. line.
Van Rensselaer	Seneca	Porter	4	R	20 ft. w. of e. line.
Virginia	Jefferson	Cherry	20	R	23 ft. n. of s. line.
Virginia	Cherry	Rose	6	R	4 ft. n. of s. line.
Walnut	Genesee	Eagle	6	R	40 ft. w. of e. line.
Washington	Ohio	Tupper	12	H	41 ft. e. of w. line.
Washington	Ohio	Exchange	10	R	26 ft. e. of w. line.
Washington	Exchange	Genesee	6	R	38 ft. e. of w. line.
Washington	Tupper	500 feet southerly	6	R	23 ft. w. of e. line.

Schedule of Water Pipe laid, giving Location, Size of Pipe, and on what System.

Street.	From.	To.	Size of Pipe. Inches.	System.	Location of Pipe.
Washington	Tupper	350 feet northerly.....	6	R	39 ft. w. of e. line.
Washington	Goodell.....	High.....	6	H	38 ft. w. of e. line.
Walter.....	Elk	Perry.....	6	R	25 ft. w. of e. line.
Watson	Clinton.....	Broadway.....	6	R	18 ft. e. of w. line.
Waverley.....	Ferry.....	R. R. avenue.	6	H	28 ft. e. of w. line.
Wells	Seneca	Exchange.....	4	R	27 ft. e. of w. line.
West Bennett.....	Clinton	450 feet northerly.....	2	R	
William.....	Michigan	Pratt.....	10	R	27 ft. s. of n. line.
William.....	Pratt	122 feet east of Madison...	6	R	39 ft. n. of s. line.
William.....	Jefferson.....	Adams.....	20	R	42 ft. s. of n. line.
William.....	Emslie	766 feet easterly.....	6	R	
William.....	Adams.....	N. Y. C. R. R.	10	R	32 ft. s. of n. line.
William.....	N. Y. C. R. R.	Indian Reservation Line...	4	R	
William.....	N. Y. C. R. R.	Williamsville Road.....	12	R	40 ft. s. of n. line.
Williamsville road.....	William	1,275 ft. north of Broadway	12	R	42 ft. e. of w. line.

Schedule of Water Pipe laid, giving Location, Size of Pipe, and on what System.

WEST SIDE.

Street.	From.	To	Size of pipe. Inches.	System	Location of Pipe.
Albany.	Niagara	West avenue.	6	R	40 ft n of s line.
Allen.	Main.	Wadsworth	24	H	50 ft n of s line.
Amherst	Niagara.	Military road.	6	R	50 ft s of n line.
Ashland avenue.	Bryant.	830 feet southerly.	6	H	40 ft w of e line.
Ashland avenue.	Ferry	370 feet southerly.	6	H	21 ft e of w line.
Ashland avenue.	Ferry	559 feet northerly.	6	H	27 ft e of w line.
Auburn avenue.	West avenue	Gelston	4	R	27 ft s of n line.
Balcom	Main	Michigan.	6	H	
Barton	Breckenridge.	120 feet southerly.	2	R	5 ft w of e line.
Bean alley.	Huron	170 feet southerly.	4	R	
Bird avenue.	West avenue	Grant	6	R	24 ft s of n line.
Bouck avenue.	Niagara.	Dewitt	6	R	43 ft s of n line.
Brayton	Vermont	Rhode Island.	6	H	32 ft w of e line.
Breckenridge.	Niagara	West avenue.	16	R	25 ft s of n line.
Breckenridge.	West avenue.	Dewitt	4	R	29 ft s of n line.
Breckenridge.	DeWitt.	Barton	6	R	25 ft s of n line.
Bryant	Linwood avenue.	Howard avenue.	6	H	
Bryant	Elmwood avenue.	Ashland avenue.	6	H	
Bryant	Richmond avenue.	210 feet easterly.	6	R	39 ft s of n line.
Butler.	Richmond avenue.	Delaware avenue	6	H	
Canal.	Erie	Commercial.	6	R	41 ft s of n line.
Carolina.	Erie canal.	Sixth.	4	R	
Carolina.	Sixth	Niagara	6	R	
Carolina.	Prospect avenue.	Tupper.	6	R	
Cary.	Lot line bet. lots 171 & 172	280 feet west of Morgan.	4	R	27 ft n of s line.
Chapin Parkway.	Soldiers' Place.	Delavan avenue.	6	R	11 ft e of w line.

Schedule of Water Pipe laid, giving Location, Size of Pipe, and on what System.

Street.	From.	To	Size of Pipe. Inches.	System.	Location of Pipe.
Chenango	Utica	Ferry	6	R	36 ft e of w line.
Chippewa.	Franklin	Georgia	6	R	
Chippewa.	Main	Franklin.	6	H	
Clifton place.	Cottage	Norris Place.	4	H	16 ft w of e line.
College.	Cottage	North.	6	H	31 ft e of w line.
Commercial	Terrace	Water.	6	R	
Connecticut.	Niagara	Prospect avenue.	20	H	
Connecticut	Prospect avenue.	Fargo avenue.	4	H	15 ft s of n line.
Connecticut	Fargo avenue.	West avenue.	6	H	27 ft s of n line.
Connecticut	West avenue.	Plymouth avenue.	16	H	10 ft n of s line.
Connecticut	Plymouth avenue.	Richmond avenue.	6	H	38 ft s of n line.
Cottage	Mariner	Hudson	10	H	30 ft n of s line.
Court	Main	Terrace	36	R	
Court	Main	Pearl.	6	H	
Court	Morgan	Terrace	6	R	
Court	Wilkeson	Georgia	4	R	43 ft n of s line.
Danforth	Forest avenue.	Bradley.	6	R	38 ft e of w line.
Dayton.	Main.	Prime.	4	R	
Delavan avenue.	Chapin Parkway.	300 feet easterly.	4	R	20 ft s of n line.
Delaware avenue.	Church.	Niagara.	4	R	
Delaware avenue.	Niagara	Tupper	6	R	
Delaware avenue.	Tupper.	North	6	H	
Delaware avenue	North	585 feet north of Ferry.	12	H	36 ft w of e line.
Delaware avenue.	585 feet north of Ferry.	775 feet north of Ferry.	10	H	
Delaware avenue.	775 feet north of Ferry.	Chapin place	6	H	16 ft w of e line.
Delaware place.	Delaware avenue.	Virginia	4	H	19 ft n of s line.

Dewitt	Breckenridge.....	400 feet northerly.....	4	R	43 ft w of e line.
Dewitt	Forest avenue.....	485 feet northerly.....	4	R	19 ft w of e line.
Eagle.....	Main.....	Pearl.....	6	H	
Eagle.....	Franklin.....	Morgan.....	4	R	26 ft s of n line.
East.....	Parish.....	Farmer.....	16	R	39 ft e of w line.
Edward	Virginia	220 ft. e. of Delaware ave.	4	H	
Efner	Georgia	300 feet northerly.....	6	R	19 ft e of w line.
Efner.....	Carolina.....	Maryland.....	4	R	32 ft w of e line.
Eighteenth.....	Connecticut.....	Vermont.....	6	H	21 ft w of e line.
Eighteenth	Rhode Island	Massachusetts.....	6	R	32 ft e of w line.
Elmwood avenue.....	Hodge avenue.....	200 feet northerly.....	6	H	
Erie	Main.....	Terrace	6	H	31 ft n of s line.
Erie	Terrace	Water.....	6	R	
Erie	Water.....	Buffalo River.....	4	R	
Express	Pearl.....	125 feet westerly.....	6	H	
Fargo avenue... ..	Connecticut.....	270 feet southerly.....	4	H	10 ft e of w line.
Fargo avenue.....	Connecticut.....	Hampshire.. ..	6	H	38 ft w of e line.
Fargo avenue.....	Hampshire.....	Niagara	6	R	38 ft w of e line.
Fargo avenue.....	Hudson.....	Pennsylvania.....	6	K	40 ft e of w line.
Fargo avenue.....	Jersey.....	Porter avenue.....	6	H	23 ft w of e line.
Farmer	Niagara.....	Gurnsey.....	6	R	20 ft n of s line.
Ferry	Erie Canal.....	Niagara	4	R	
Ferry.....	Gelston.....	Richmond avenue.....	6	R	40 ft s of n line.
Ferry.....	Main.....	Richmond avenue.....	12	H	55 ft n of s line.
Fifteenth.....	York.. ..	Vermont.....	6	H	41 ft e of w line.
Fifth.....	Court	Pennsylvania.....	6	R	34 ft w of e line.
Fly.....	State.....	Maiden Lane.....	4	R	
Forest avenue.....	Erie Canal.....	Niagara	4	R	
Forest avenue	Niagara.....	West avenue.....	16	R	
Forest avenue	West avenue.....	Lincoln parkway.....	12	R	40 ft s of n line.
Fourteenth	Pennsylvania.....	Porter avenue.....	24	H	
Fourteenth	Porter avenue.....	500 ft. north of York.....	6	H	25 ft e of w line.

Schedule of Water Pipe laid, giving Location, Size of Pipe, and on what System.

Street.	From.	To	Size of Pipe. Inches.	System.	Location of Pipe.
Fourteenth	Connecticut.....	130 feet southerly.....	8	H	21 ft e of w line.
Fourteenth	Connecticut.....	Rhode Island.....	6	H	24 ft e of w line.
Fourteenth	Rhode Island.....	Hampshire.....	6	R	38 ft w of e line.
Fourth	Genesee.....	430 feet northerly.....	4	R	
Fourth	Carolina.....	300 feet southerly.....	4	R	
Franklin	Terrace.....	Swan.....	4	H	24 ft e of w line.
Franklin	Swan.....	Eagle.....	6	H	
Franklin	Eagle.....	Chippewa.....	4	R	
Franklin	Chippewa.....	500 feet northerly.....	6	R	41 ft e of w line.
Franklin	500 feet north of Chippewa.	Tupper.....	4	R	
Franklin	Tupper.....	North.....	6	H	38 ft e of w line.
Fremont place	Virginia.....	North.....	6	H	30 ft e of w line.
Front avenue	Porter avenue.....	Vermont.....	20	R	
Front avenue	Rhode Island.....	216 ft. south of Connecticut	6	H	30 ft w of e line.
Front avenue	Stand Pipe.....	Niagara.....	16	R	
Gelston	Ferry.....	250 ft. n. of Breckenridge..	4	R	36 ft w of e line.
Genesee	Main.....	Pearl.....	4	H	
Genesee	Pearl.....	Niagara.....	4	R	
Genesee	Niagara.....	East line of C. R. R.....	6	R	
Georgia	Chippewa.....	Niagara.....	6	R	
Georgia	Niagara.....	Sixth.....	4	R	
Georgia	Sixth.....	Court.....	6	R	28 ft n of s line.
Georgia	Court.....	C. R. R. Round house.....	3	R	
Hamilton	East.....	50 feet east of Thompson..	6	R	30 ft s of n line.
Hampshire	Prospect avenue.....	Plymouth avenue.....	6	R	38 ft s of n line.
Hanover	Main.....	Prime.....	4	R	

Henry	Terrace.....	Erie canal.	6	R	24 ft s of n line.
Hodge avenue.....	Delaware avenue.....	Asbland avenue.....	6	H	22 ft n of s line.
Howard avenue.....	Bryant.....	Summer.....	6	H	44 ft w of e line.
Hudson	Niagara.....	West avenue.....	10	R	24 ft s of n line.
Hudson	West avenue.....	Cottage	10	H	42 ft n of s line.
Hudson	Cottage	Wadsworth	6	H	42 ft n of s line.
Hudson	Sixth	Erie canal.....	4	R	
Huron	Franklin.....	Delaware avenue.....	4	R	
Huron	Delaware avenue.....	Prospect avenue.....	6	R	
Irving place.....	Allen.....	North.....	6	H	32 ft e of w line.
Jackson	Genesee.....	Court place.....	4	R	28 ft w of e line.
Jersey	Prospect avenue.....	West avenue.....	6	H	
Jersey.	West avenue.....	Richmond avenue.....	16	R	
Jersey	Fourteenth.....	200 feet northerly.....	6	H	
John	Seneca	Pearl.....	4	H	10 ft e of w line.
Johnson place.....	Delaware avenue.....	Carolina.....	4	R	35 ft w of e line.
Ketchum place.....	Jersey	York.....	6	H	
Lake.....	Commercial.....	60 feet easterly.....	4	R	
Lake View avenue.	Pennsylvania.....	Porter avenue.....	6	R	40 ft e of w line.
Lincoln parkway.....	Forest avenue.....	South line of Park.....	6	R	
Linwood avenue.....	North.....	Ferry	6	H	
Loyd.....	Main.....	South end of Bridge.....	4	R	
Loyd.....	South end of Bridge.....	Prime	6	R	
Mariner.....	Virginia.....	North	6	H	30 ft e of w line.
Maryland	Seventh	100 feet west of Fourth.....	4	R	29 ft n of s line.
Maryland	West avenue.....	Twelfth.....	6	R	41 ft s of n line.
Maryland.....	Cottage	College.....	6	H	30 ft s of n line.
Maryland.....	Niagara.....	Seventh	6	R	
Massachusetts.....	Seventh	Niagara.....	20	H	46 ft s of n line.
Massachusetts	Niagara.....	Prospect avenue.....	6	R	41 ft s of n line.
Massachusetts	Prospect avenue.....	Fargo avenue.....	6	H	40 ft s of n line.
Massachusetts	Plymouth avenue.....	Fourteenth.....	6	R	38 ft s of n line.

Schedule of Water Pipe laid, giving Location, Size of Pipe, and on what System.

Street.	From.	To	Size of Pipe. Inches.	System.	Location of Pipe.
Mechanic	Terrace	350 feet westerly	4	R	34 ft n of s line.
Michigan	Balcom	300 feet northerly	6	H	25 ft w of e line.
Mohawk	Main	Niagara	6	R	36 ft s of n line.
Mohawk	Niagara	150 feet westerly	4	R	
Morgan	Chippewa	Mohawk	4	R	41 ft w of e line.
Morgan	Niagara	Eagle	4	R	26 ft e of w line.
Niagara	Main	250 ft. north of Connecticut.	16	R	61 ft e of w line.
Niagara	250 ft. north of Connecticut.	Rhode Island	24	H	
Niagara	Connecticut	Massachusetts	20	H	
Niagara	Massachusetts	Front avenue.	6	R	
Niagara	Front avenue.	Breckenridge	16	R	20 ft w of e line.
Niagara	Albany	Forest avenue	4	R	19 ft e of w line.
Niagara	Breckenridge	300 feet northerly	4	R	19 ft w of e line.
Niagara	Bouck avenue.	250 feet southerly	4	R	19 ft w of e line.
Niagara	Bouck avenue.	Forest avenue	4	R	19 ft w of e line.
Niagara	Forest avenue.	Parish	16	R	18 ft w of e line.
Niagara	Amherst	300 feet southerly	6	R	
Niagara	Amherst	South line of lot 64.	6	R	39 ft w of e line.
Nineteenth.	Rhode Island	Massachusetts	6	R	42 ft w of e line.
Norris place.	Cottage	Wadsworth	4	H	
North	Main	Porter avenue.	12	H	31 ft n of s line.
North Pearl.	Virginia	North	6	H	28 ft e of w line.
Norton	Water	Peacock	6	R	
Parish	Niagara	East	16	R	
Park	Virginia	North	6	H	31 ft e of w line.
Park Place.	Delaware avenue.	Johnson place.	4	R	

Peacock.....	Erie.....	Norton.....	6	R	
Pearl.....	Commercial.....	Terrace.....	4	R	
Pearl.....	Terrace.....	Court.....	6	H	40 ft w of e line.
Pearl.....	Terrace.....	200 feet northerly.....	6	R	
Pearl.....	Court.....	Genesee.....	6	H	
Pearl.....	Genesee.....	Tupper.....	4	H	29 ft e of w line.
Pearl.....	Virginia.....	250 feet southerly.....	4	H	
Pennsylvania.....	Niagara.....	175 feet west of Fourth.....	6	R	24 ft n of s line.
Pennsylvania.....	Prospect avenue.....	150 feet easterly.....	4	H	
Pennsylvania.....	West avenue.....	Plymouth avenue.....	6	R	
Pennsylvania.....	Plymouth avenue.....	150 feet east of 13th.....	6	H	25 ft n of s line.
Pennsylvania.....	Fourteenth.....	Wadsworth.....	24	H	
Pennsylvania.....	Fifth.....	250 feet westerly.....	3	R	
Plymouth avenue.....	Hudson.....	Jersey.....	6	H	25 ft e of w line.
Plymouth avenue.....	Porter avenue.....	Connecticut.....	16	H	38 ft w of e line.
Plymouth avenue.....	Connecticut.....	Rhode Island.....	6	H	41 ft w of e line.
Plymouth avenue.....	Rhode Island.....	Massachusetts.....	6	R	25 ft e of w line.
Porter avenue.....	Sixth.....	200 feet west of Fourth.....	4	R	21 ft n of s line.
Porter avenue.....	Sixth.....	Seventh.....	6	R	
Porter avenue.....	Seventh.....	Prospect avenue.....	6	H	
Porter avenue.....	Prospect avenue.....	West avenue.....	20	H	
Porter avenue.....	West avenue.....	Fourteenth.....	24	H	8 ft n of s line.
Porter avenue.....	Prospect avenue.....	West avenue.....	24	R	
Porter avenue.....	Fourteenth.....	The Circle.....	12	H	
Prime.....	Main.....	Hanover.....	4	R	
Prospect avenue.....	Huron.....	Hudson.....	6	R	38 ft e of w line.
Prospect avenue.....	Hudson.....	Porter avenue.....	6	H	25 ft w of e line.
Prospect avenue.....	Porter avenue.....	Vermont.....	24	R	
Prospect avenue.....	Porter avenue.....	Connecticut.....	20	H	
Prospect avenue.....	Connecticut.....	Vermont.....	4	H	17 ft w of e line.
Prospect avenue.....	Vermont.....	Niagara.....	6	R	42 ft w of e line.
Penfield.....	West avenue.....	250 feet westerly.....	6	R	25 ft s of n line.

Schedule of Water Pipe laid, giving Location, size of Pipe, and on what System.

Street.	From.	To.	Size of Pipe. Inches.	System.	Location of Pipe.
Public Alley.....	Jersey	Fourteenth.....	4	H	13 ft s of n line.
Rhode Island.....	Sixth.....	Niagara.....	6	H	
Rhode Island.....	Prospect avenue.....	Richmond avenue.....	6	R	25 ft n of s line.
Richmond avenue	Jersey.....	Forest avenue.....	16	R	16 ft e of w line.
River	Erie	Peacock slip.....	6	R	41 ft e of w line.
Seneca.....	Main	Franklin.....	4	H	39 ft s of n line.
Seneca.....	Main.....	100 feet westerly	6	H	
School.....	Fargo avenue.....	Prospect avenue.....	6	R	
Seventeenth.....	Vermont.....	315 feet southerly.....	6	H	22 ft e of w line.
Seventh	Court.....	Massachusetts	36	R	
Seventh	Wilkeson.....	Georgia.....	4	R	33 ft e of w line.
Seventh	Georgia	Porter avenue.....	6	R	40 ft w of e line.
Seventh	Porter avenue.....	Vermont.....	4	H	26 ft e of w line.
Seventh	Vermont.....	Rhode Island	3	H	12 ft e of w line.
Seventh	Vermont.....	Massachusetts	30	R	
Seventh	Rhode Island.....	Massachusetts	6	H	33 ft w of e line.
Seventh	Massachusetts	Front avenue.....	12	R	
Sixteenth.....	York.....	Vermont	6	H	40 ft w of e line.
Sixth.....	Court	Carolina	6	R	24 ft w of e line.
Sixth.	Court	Porter avenue.....	20	R	48 ft w of e line.
State	Canal	Water.....	4	R	
St. John's Place... ..	Wadsworth	225 feet westerly.....	4	H	32 ft s of n line.
Summer	Main	Howard avenue.	6	H	44 ft n of s line.
Swan.....	Main.....	Pearl.....	6	H	
Tenth.....	Carolina.....	Hudson	6	R	25 ft w of e line.
Terrace, lower.....	Court.....	Seneca	20	R	61 ft e of w line.

Terrace, lower.....	Court.....	Mechanic.....	6	R	26 ft e of w line
Terrace, upper.....	Seneca.....	Main.....	20	R	118 ft e of w line.
Terrace, upper.....	Pearl.....	Main.....	6	R	
Terrace, upper.....	Eagle.....	Daw alley.....	6	R	13 ft w of e line.
Terrace.....	Franklin.....	Evans.....	6	R	
Thirteenth.....	Pennsylvania.....	Jersey.....	6	H	38 ft w of e line.
Thirteenth.....	York.....	390 feet southerly.....	4	H	13 ft e of w line.
Thirteenth.....	York.....	Rhode Island.....	6	H	44 ft w of e line.
Thirteenth.....	Rhode Island.....	Massachusetts.....	6	R	44 ft w of e line.
Tonawanda.....	Amherst.....	500 feet southerly.....	4	R	22 ft w of e line.
Tracy.....	Delaware avenue.....	Carolina.....	4	R	
Tupper.....	Main.....	Virginia.....	20	R	21 ft s of n line.
Tupper.....	Delaware avenue.....	500 feet westerly.....	4	H	33 ft s of n line.
Twelfth.....	Virginia.....	Maryland.....	6	H	
Utica.....	Main.....	Linwood avenue.....	6	H	
Utica.....	Linwood avenue.....	Delaware avenue.....	4	H	
Utica.....	Delaware avenue.....	160 feet west of Elmwood.....	6	H	19 ft n of s line.
Utica.....	Elmwood avenue.....	125 feet westerly.....	4	H	14 ft s of n line.
Vermont.....	Richmond avenue.....	West avenue.....	6	H	27 ft n of s line.
Vermont.....	West avenue.....	Niagara.....	16	H	57 ft s of n line.
Vermont.....	Prospect avenue.....	Seventh.....	24	R	
Vermont.....	Seventh.....	Front avenue.....	20	R	
Vermont.....	Seventh.....	Front avenue.....	3	H	52 ft s of n line.
Vermont.....	Niagara.....	Seventh.....	36	R	
Vermont.....	Niagara.....	Seventh.....	4	H	40 ft s of n line.
Virginia.....	Cottage.....	Tupper.....	6	H	39 ft s of n line.
Virginia.....	Cottage.....	Franklin.....	10	H	
Virginia.....	Tupper.....	West avenue.....	20	R	56 ft n of s line.
Virginia.....	West avenue.....	Prospect avenue.....	6	R	39 ft n of s line.
Virginia.....	Seventh.....	Sixth.....	6	R	39 ft s of n line.
Wadsworth.....	Allen.....	Pennsylvania.....	24	H	16 ft n of s line.
Wadsworth Place.....	College.....	Wadsworth Park.....	6	H	

Schedule of Water Pipe laid, giving Location, size of Pipe, and on what System.

Street.	From.	To.	Size of Pipe. Inches.	System.	Location of Pipe.
Water.....	Commercial.....	Norton.....	6	R	26 ft w of e line.
West avenue.....	Carolina.....	Virginia.....	6	R	39 ft e of w line.
West avenue.....	Virginia.....	Porter avenue.....	20	R	
West avenue.....	Porter avenue.....	600 feet southerly.....	4	H	
West avenue.....	Porter avenue.....	Connecticut.....	6	H	38 ft w of e line.
West avenue.....	Connecticut.....	Vermont.....	16	H	26 ft e of w line.
West avenue.....	Albany.....	Breckenridge.....	6	R	22 ft e of w line.
West avenue.....	Breckenridge.....	Forest avenue.....	16	R	24 ft e of w line.
Whitney Place.....	Georgia.....	Carolina.....	4	R	24 ft w of e line.
Whitney Place.....	Carolina.....	Hudson.....	6	R	37 ft e of w line.
Wilkeson.....	Court.....	Sixth.....	10	R	25 ft s of n line.
Wilkeson.....	Sixth.....	Seventh.....	4	R	40 ft n of s line.
York.....	West avenue.....	Richmond avenue.....	6	H	43 ft s of n line.

PUMPING
DEPARTMENT.

1884.

PUMPING DEPARTMENT.

PUMPING ENGINES AND THEIR CAPACITY PER 24 HOURS.

I. Lower House.

Engine No. 1, Worthington.....	10,000,000 gallons.
“ “ 2, “	15,000,000 “
“ “ 3, “	15,000,000 “

II. Upper House (Distributing.)

Engine No. 2, Holly.....	6,000,000 gallons.
“ “ 1, “ Reserve.....	3,000,000 “
Water pumped 1884.....	8,789,971,200 “
“ “ 1883.....	8,568,445,200 “

—————
Increase, 1884..... 221,526,000 gallons.

DAILY SUPPLY.

The average daily supply for the year 1884 was twenty-four million eighty-two thousand one hundred and twelve gallons, an increase of six hundred and six thousand nine hundred and twenty gallons over the previous year. On the following days the greatest and least amounts were pumped:

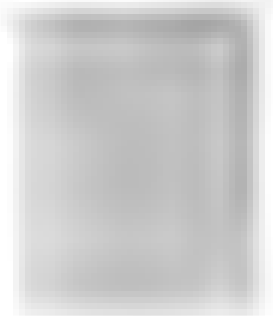
GREATEST AMOUNTS PUMPED.

Friday, January 25, 1884.....	34,068,600 gallons.
Friday, February 29, 1884.....	34,335,000 “
Saturday, December 20, 1884.....	33,278,900 “

LEAST AMOUNTS PUMPED.

Sunday, April 27, 1884.....	16,863,400 gallons
Sunday, May 18, 1884.....	17,299,400 “
Thursday, June 5, 1884.....	18,230,900 “





THE FOLLOWING GIVES NAMES OF ALL REGULAR EMPLOYES
AND THE WAGES PAID EACH ON DEC. 31, 1884.

Board of Water Commissioners.

	Per Annum.	Per Day.
Louis P. Reichert, President.....		\$2.00
James Ryan, Secretary.....		2.00
George W. Miller.....		2.00

Superintendent.

Louis H. Knapp.....	\$2,500
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Office.

John T. Rees, Registrar.....	1,500	
Gustavus C. Grimard, Cashier.....	1,200	
John Scanlon, Clerk.....	800	
Charles H. Bieber, Clerk.....	800	
Adelbert Hoestermann, Clerk.....	800	
Roy Crandall, Clerk.....	480	
Moritz Koenig, Draughtsman.....	800	
Ludovice Leitze, Draughtsman.....	600	
Edward J. Brady, Draughtsman.....		2.00
Garrett W. Doyle, Inspector.....		2.00
Robert Clarkson, Inspector.....		2.00
Dennis Ryan, Inspector.....		2.00
Andrew Fuller, Inspector.....		2.00
Isaac Hodge, Inspector.....		2.00
M. M. Hollenbeck, Inspector.....		2.00
Thomas H. Wilson, Inspector.....		2.00
Ephraim Funk, Inspector.....		2.00

	Per Annum.	Per Day.
Patrick J. Quinn, Inspector.....		\$2.00
Patrick Ryan, Jr., Tapper.....		2.50
H. Kelley, Helper.....		1.75

Store House.

James J. Collins, Foreman Repairs.....	\$1,200	
James Stratford, Store keeper.....	800	
Charles E. Richardson, Time keeper.....	900	
George Schneider, Plumber.....		2.00
John L. Fisher, Helper.....		1.75
Owen Ryan, Hostler.....	660	
James Delaney, Carpenter.....		1.75
Jacob Fisher, Teamster.....		1.75
J. J. Lánahan, Watchman.....		1.75
M. Heinold, Watchman.....		1.50
J. Pendergast, Repairer.....		2.25
P. Taughrin, Repairer.....		1.75
J. Higgins, Repairer.....		1.75
D. Cavany, Repairer.....		1.75
P. Winnehan, Repairer.....		1.75
Jacob Moest, Repairer.....		1.75
C. Prichard, Repairer.....		1.75
F. Kibler, Repairer.....		1.75
P. Madigan, Repairer.....		1.75
C. Flanagan.....		2.00
James Ryan.....		1.75
F. Schwartz.....		1.75
Patrick Ryan.....		1.75

Lower Pump House.

Per Annum. Per Day.

McK Brennan, Engineer in charge.....	\$1,800	
McCameron, Engineer.....	1,100	
McA. Hoffman, Engineer.....	1,000	
McHodgkins, Fireman.....		\$2.00
McCoonly, Fireman.....		2.00
McM. Hickey, Fireman.....		2.00
McM Abraham, Fireman.....		2.00
McDaniel M. Hewett, Fireman.....		2.00
McGe Hart, Fireman.....		2.00
McM Roach, Coal passer.....		1.50
McK Mangan, Coal passer.....		1.50
McMcoran, Coal passer.....		1.50
McK Maher, Watchman Reservoir.....		1.25
McFisher, Watchman Reservoir.....		1.25
McGriffin, Wiper.....		2.16
McDonway, Wiper.....		2.00
McLein, Laborer.....		1.50
McWilliams, Laborer.....		1.50
McAiley, Laborer.....		1.50
McCue, Laborer.....		1.50
McCurry, Laborer.....		1.50
McFerty, Laborer.....		1.50
McLanahan, Laborer.....		1.50

Upper Pump House.

McMullany, Engineer.....	1,000	
McBrown, Engineer.....	1,000	
McEl Victory, Fireman.....	780	
McHard Hayes, Fireman.....	780	
McCutler, Laborer.....		1.50
McTregilgus, Laborer.....		1.50






Seventeenth Annual Report

Buffalo City Water Works

1885.

BY BUFFALO FILE 1885



SEVENTEENTH
ANNUAL REPORT

OF THE

Compliments of the

Buffalo Water Commissioners.

PLEASE EXCHANGE.

THE YEAR 1885.

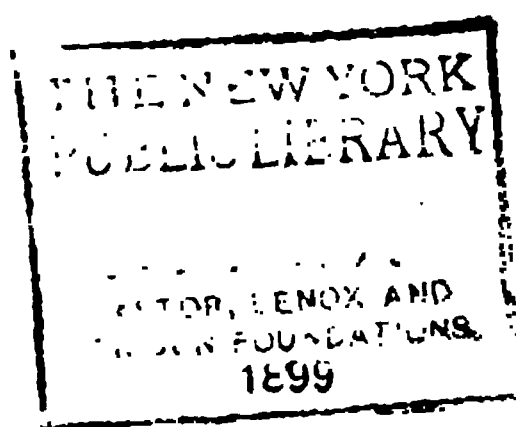


BUFFALO:
HAAS & KLEIN, City Printers, 126 Seneca St.
1886.

SEVENTEENTH
ANNUAL REPORT
OF THE
BUFFALO CITY WATER WORKS
BUFFALO, NEW YORK,
FOR
THE YEAR 1885.



BUFFALO:
HAAS & KLEIN, City Printers, 126 Seneca St.
1886.



OFFICERS--1885.

Board of Water Commissioners.

LOUIS P. REICHERT, Chairman.

JAMES RYAN, Secretary.

GEORGE W. MILLER, (Resigned Dec. 14th.)

S. K. WORTHINGTON.

Superintendent.

LOUIS H. KNAPP.

Office.

JOHN T. REES, Registrar.

G. C. GRIMARD, Cashier.

JOHN SCANLON, Clerk.

CHAS. H. BIEBER, “

A. HOESTERMANN, “

ROY CRANDALL, “

JAMES H. LEE, “

Chief Engineer.

PATRICK BRENNAN.

Commissioners' Report.

To the Honorable the Common Council of the City of Buffalo :

GENTLEMEN : In compliance with title fifteen, section number ten of the City Charter, we have the honor to herewith submit to you the Seventeenth Annual Report of the Buffalo City Water Works :

Mr. George W. Miller resigned as a member of the Board on the 14th of December last.

The vacancy thus created was filled by Mayor Scoville by the appointment of S. K. Worthington, Esq.

The works generally, are in good repair.

We anticipate no further trouble from fear of our water supply being contaminated from dredging dumped above the Inlet Pier, as this vexed question has been amicably settled, so that hereafter all dredging matter and refuse will be carried below our inlet.

During the early part of the year the department was greatly troubled by needle ice being drawn into and blocking the openings to the Inlet Pier in the river.

The usual recourse when this had occurred during the previous years, was by opening the gates to old tunnel and valve to new tunnel at Bird Island Pier, taking water from this point while Inlet Pier was being cleared.

During the month of January last, the openings to the Inlet Pier were entirely closed by ice, and the openings to new and old tunnels at Bird Island Pier at same time were so effectually blocked by anchor ice, that water could not be taken at this point until a channel through the ice was blasted from the open water in the river to the openings on the pier.

The water supply being scant for two or three days.

To guard against the reoccurrence of this difficulty, we have erected on the Inlet Pier, a suitable house where two men are stationed day and night during the season, for the purpose of preventing the accumulation of ice in the openings of the inlet.

The engineer at pumping station being at all times in direct communication with the men at inlet, by means of a code of signals adopted for their use, so that we are enabled to know the exact state of affairs at this important point.

We have expended \$4,416.58 in improving and repairing crib work, protecting the openings to the tunnels at Bird Island Pier, and trust that with improve-

ments made and precautions taken will prevent the recurrence of our last year's difficulty.

The total requirements of the department for the year, apart from making provisions for payment of the bonds falling due were :

Interest on Bonds.....	\$178,116.74
Maintenance and Repairs.....	92,438.30
Improvements and Extensions.....	332,392.16

There was ordered by your Honorable Body, 9 miles 1,966 feet of mains laid on streets where the revenue did not warrant the expenditure of the money necessary to do the work from the department revenue. To carry on this work you appropriated \$82,300.

All of this work was done, the cost of which was kept under the amount appropriated.

We sent to your Honorable Body under date of January 11, 1886, the following communication, and would again call your attention to clause therein, in regard to special appropriation for pipe laying, viz.:

* * * * *

We are not in favor of special appropriation for pipe laying by the Council, unless recommended by this Commission, as it is the desire of this Board to have this department fully self-sustaining and not tax our citizens for laying mains in parts of the city where no revenue is derived therefrom.

REVENUE.

The total amount received by the Water Department for the year ending December 31, 1885, was \$444,424.70. This is an increase over the previous year of \$61,843.06. This increase is in a measure due to the collection of the frontage tax; the exact amount realized from this source cannot be stated at this time, as there are balances to be rebated May next.

We believe that, notwithstanding the trouble and petty annoyances in the adjustment of this tax to our consumers, that it is for the interest of the department, and thereby indirectly an advantage to the tax-payer taking water.

During the year there was laid 9 miles 1,966 feet of pipe on special appropriation, where but very little revenue is derived. The property abutting upon the streets where mains are laid, should pay for the benefits derived, which can only be reached through the enforcement of the frontage tax.

WATER PIPES.

There was laid during the year 29 miles 2,746 feet of water pipes of various sizes at a cost of \$224,147.10, of which amount there was laid in the central and business portions of the city, 4 miles 1,008 feet of large mains, to replace the small pipes therein, at a cost of

\$50,310.77. This assures the territory bounded by Main, Michigan, Exchange and Genesee streets a water supply for manufacturing, domestic and fire purposes, equal to any of our sister cities. The total length of pipe in the city being 191 miles 830 feet.

The cost of laying mains for the year will compare favorably with same work during previous years, notwithstanding that all pipes were laid six feet deep, being one foot deeper than formerly.

Nearly all fire hydrants on new line of mains have connections for 4-inch suction in addition, and regular 2½ inch nozzels for hose connections. The hydrants being six feet in length, being one foot longer than formerly, made necessary to correspond with the pipe.

WATER DEBT.

There has been no change in amount of the water debt during the year. It remains the same as on January 1, 1885, \$2,828,382.

The 7 per cent bonds that fell due on July 1, were refunded at a lower rate of interest, 3½ per cent, and sold at a premium of \$6,138. There will become due during the coming year, \$150,000 of 7 per cent bonds.

We would recommend that they be refunded at a lower rate of interest.

NEW PUMPING ENGINE.

The new 15,000,000 gallon pumping engine under contract at the time of issuance of our last report, has been completed and is now doing service.

The trial test of this engine made under the supervision of John W. Hill, Master Engineer of Cincinnati, representing the city, a copy of his report to us is published herein, shows engine to be in all respects ahead of guarantees of the builders in contract. She is now being run on her final test of 1800 hours, as required by contract, and giving entire satisfaction thus far.

REPAIRS TO BUILDINGS.

There was expended \$12,103.32 in making repairs to Lower Pumping House building, the repairs consisting of a new roof, new floor, with iron beams, cementing the cellar and repainting throughout; this building is now in excellent repair.

We have erected an overhead crossing over the railroad tracks, connecting the Pump House with roadway on the bank east of the building, thereby greatly facilitating reaching the station with safety.

For a detailed statement of the condition of the works, the finances, construction, maintenance, etc., we refer you to the reports herewith of the officers of the respective departments.

Respectfully submitted,

L. P. REICHERT,

JAMES RYAN,

S. K. WORTHINGTON,

Water Commissioners.

REPORT
OF THE
SUPERINTENDENT
FOR
1885.



BUFFALO CITY WATER WORKS.

SUPERINTENDENT'S OFFICE.

BUFFALO, January 1st, 1886.

To Louis P. Reichert, James Ryan and S. K. Worthington, Water Commissioners:

GENTLEMEN. I have the honor herewith to present the annual report, showing the operation of the department during the year ending December 31, 1885.

During the summer a substantial and permanent house has been constructed on the Inlet Pier, with accommodations for keeping men there during the winter to remove the ice from the shaft.

The Bird Island Pier openings to the old and new tunnels have been repaired and enlarged, and placed in good condition. A small amount of work is still required to complete the ice breaker, which, on account of the lateness of the season, was not finished.

At the Engine House a new floor with iron beams, has been placed in the main engine room, and the cellar cemented. By removing a portion of the north wall, and putting in an iron girder, all the engines have been practically brought into one room and made much more pleasant. A new tin roof has been placed on the roof of the main building, and the space inside divided by a false ceiling. An overhead crossing has also been placed across the railroad track, making access to the Lower Engine House easy and safe.

Since the completion of the new engine the Upper Engine House has not been in use. This can be profitably and economically used to supply that part of the city above the contour line of 80, which at times is only partially supplied by the present system. The expense of this change can be met by the department. During the summer experiments were tried to ascertain the capacity of the old tunnel. It was found capable of delivering 50 million gallons per day, when the water in the river was at its average height.

Engine No. 1 is very much in need of a thorough repairing, and should be done at the earliest possible moment. Many reasonable complaints have been made of dirty water in different parts of the city and at times when the water in the river was clean. This is caused, in my opinion, by the increased velocity of the water

in the pipes, caused by an increased consumption, many of the old pipes have large amounts of deposit in them, before any marked improvement can be made in them, flushing branches must be placed in the pipes and connected with the sewers, and the pipes cleaned by discharging through the full size of the pipes into the sewer.

Provision cannot be made to soon for increasing the supply to both services. At present the reservior supply is limited to a 36 and 30-inch pipe, and the high service to a 20 and 16-inch pipe. In order to increase the supply to the former, a new engine and a separate 36-inch pipe laid from the engine house to the lower part of the city is required. To increase the latter, larger pipes are required. The scant supply of water east of Jefferson street, each year demonstrates more fully the wisdom of purchasing the land and the necessity of constructing the reservoir on the Dodge Farm. Increased office accommodations are much needed. Some good central site should be selected and the several branches of the department brought together.

There was laid during the year nearly 30 miles of pipe, one-third of which was in the central part of the city, in replacing the old pipe with larger ones. The high service was considerably increased by changing from the reservoir supply. The work of taking out old

hydrants and replacing them by new ones, has been continued, and the fire protection greatly improved thereby. Twelve experimental hydrants were placed in the central part of the city last summer, and were so constructed as to prevent them freezing, even when the frost is below the service pipe, 6 of them create a current by the waste of water, and 6 are provided with a double supply pipe and no waste of water takes place; so far they have not frozen, and answer every requirement.

The fire reservoirs have been by ordinance placed in charge of the department, and for their care and maintenance money should be provided. It seems to be one of the best methods of supplying water for fire purposes. Many of the present reservoirs are old and defective. An oval boiler-iron tank 12 x 14 feet and 7 to 8 feet deep, provided with two 20-inch man-holes placed at each end, supplied by a 6-inch pipe and overflow into the sewer will answer every requirement and do away with the annoyance and expense of keeping the present brick ones water tight.

There are 94 meters and 31 elevators in use. The amount of water supplied through them was 1,661,856,000 gallons. The revenue derived was \$52,067.07. The expense of maintenance was \$711.67. The total revenues for the year was \$444,440.77.

The total amount of water pumped was 10,441,393,340 gallons. The average daily consumption was 28,606,557 gallons.

The total expense of operating the works was \$92,438.30.

The total amount expended on the extension account was \$332,392.16.

The amount received for meter water, including the 3-cent and 6-cent rate, was a little over \$52,000. If the remainder of the water was sold at 10 cents per 1,000 gallons, which would be one of the lowest rates for domestic consumers, the revenue of the department would be \$930,000, or more than double what was received showing how important it is to meter large consumers and preventing unnecessary waste.

The detail reports will fully explain the operations of the department.

LOUIS H. KNAPP,

Superintendent.

REPORT
OF THE
REGISTRAR
FOR
1885.

REGISTRAR'S OFFICE.

BUFFALO, January 1st, 1886.

*To Louis P. Reichert, James Ryan, S. K. Worthington,
Water Commissioners:*

GENTLEMEN. In compliance with the requirements of your Honorable Body, I have the honor to herewith submit my report for the year ending Dec. 31st, 1885.

The total receipts and disbursements for the year were as follows :

RECEIPTS.

Cash on hand Jan'y 1st, 1885,		\$96,989.72
Cash receipts for year.....	\$353,069.40	
Frontage tax.....	\$92,209.14	
Addition to frontage tax....	892.31	
	<u>\$93,101.45</u>	
Less returned by Council....	<u>\$1,746.15</u>	<u>\$91,355.30</u>
		\$444,424.70
Appropriated from General Fund by order of Com- mon Council.....		<u>\$145,058.02</u>
Total.....		\$686,472.44

DISBURSEMENTS.

Interest on Water Bonds.....	\$178,116.74	
Maintenance and Repairs.....	92,438.30	
Improvements and Extensions.....	332,392.16	
Balance Cash on hand January 1, 1886..	83,525.24	\$686,472.44
	<u> </u>	<u> </u>

The following itemized statement shows source of revenue, viz.:

Water for City purposes....	\$100.000.00
From Domestic Consumers and Manuf'rs, not metered	194,005.71
“ Manufacturers and Rail Roads, metered.....	46,088.88
“ Flushing Sewers.....	72.77
“ Street Sprinkling.....	1,824 09
“ Circuses.....	22.50
“ New Boxes.....	132.00
“ Corporation Cocks.....	6,441.50
“ Turn-on Fees.....	108 00
“ Rent of Dodge Farm....	515 00
“ Builders	1,420.33

FROM SALE OF OLD MATERIAL.

Mar. 20, W. C. McDonald...black mare.....	\$ 75.00
Feb. 13, Jas. Ryan.....9 $\frac{6}{32}$ bush. oats...	2.94
“ 9, C. Martin.....grey mare.....	75.00
May 16, O. Ryan.....1 piece 4-in. pipe	50
“ 19, W. Jones.....old hand cart...	50
“ 23, M. Lichtenstein...100 lbs. waste gasket.....	1.00

June 2,	I. Stratford.....	hydrant pipe and tile.....	\$ 1.00	
	W. P. Stambach... manure (in ex- change for oats)	....	
July 3,	J. J. Collins.....	scrap iron.....	75	
Aug. 10,	M. Lichtenstein...	scrap iron.....	3.49	
" 13,	O. Ryan.....	1 load manure...	50	
" 18,	Bingham & Taylor.	24,650 lbs. scrap iron.....	165.07	
" 18,	Bingham & Taylor.	14,920 lbs. scrap iron.....	99.91	
" 19,	A. H. Barber.....	2 spanners.....	3.00	
" 20,	M. Lichtenstein....	584 lbs. rope waste.....	4.38	
" 22,	Jno. T. Claris.....	1 old 6-in. valve.	5.00	
" 28,	O. Ryan.....	1 load manure...	50	
Sept. 8,	M. Lichtenstein...	3,408 lbs. lead dross.....	51.12	
" 17,	F. Scheckler.....	sale of manure, to March 1st, '86.	6.00	
Oct. 2,	M. Lichtenstein...	scrap iron.....	28.00	
" 10,	Fries & Co.....	old brass.....	151.56	
" 16,	M. Lichtenstein....	1,870 lbs. lead dross.....	28.05	
Nov. 6,	Fries & Co.....	1,353 lbs. scrap brass.....	121.77	
Dec. 30,	M. Lichtenstein....	lead dross and scrap iron.....	39.45	\$864.49

LABOR AND SUPPLIES.

Feb. 18,	Mensch Bro's.....supplies at poor	
	house.....\$	30.34
Mar. 3,	Hardwick & Ware..fire supply....	34.41
" 7,	Laverack & Co....making connect's	37.41
" 13,	Howard Iron Works..branch for Green	
	building.....	46.66
" 5,	Buffalo St. R. R. Co..changing valves.	94.77
Apr. 11,	Jno. D. Smith.....forcing out pipe.	50
June 16,	D. Ullman.....repairs to eleva-	
	tor.....	1.00
July 18,	C. H. Utley.....branch for elevat'r	45.29
Aug. 5,	Stevenson Bro's...labor turning off.	5.62
" 7,	Geoge Martin.....repairs to water	
	pipe.....	7.00
" 7,	George Martin....repairs to water	
	pipe.....	7.35
" 15,	J. M. Luippold....labor at leak....	4.00
" 14,	H. C. French.....branch for elevat'r	57.79
" 14,	Hurley & Stygall..forcing out pipe.	1.25
" 27,	J. S. Moore.....laying pipe.....	80.93
Sept. 26,	Jos. Irr.....labor at leak....	5.23
" 5,	C. Berrick.....labor at leak....	1.20
" 22,	Buffalo City Park..labor and supplies	171.67
Oct. 7,	Howard Iron Works..labor and supplies	36.41
" 16,	Buff. St. R. R. Co...moving valves...	8.54
Nov. 19,	R. & P. R. R. Co..setting hydrant..	44.24
Dec. 2,	Irlbacker & Davis..setting meter...	138.23
" 10,	G. Huetter.....labor leak.....	3.00
" 20,	L. H. Knapp.....labor.....	8.40
" 22,	Sewer Commission's..changing water	
	pipes, &c.....	657.31

“	28, D. McConnell.....labor, Breck. &	Gelston sts....	\$5.35	
“	31, Tallsma & Carrick.setting meter....	26.41		
“	31, John Giesel.....labor.....	9.81		
“	31, John Giesel.....labor.....	4 00	\$1,574.12	
		<hr/>		
	Add for error by City Treasurer....		01	
*Frontage tax.....			\$91,355.30	
		<hr/>		
			\$444,424.70	

**Note.*—The amount of frontage tax rebated to January 1, 1886, being \$53,605.31.

WATER BONDS.

Bonds outstanding January 1, 1886, issued for the purchase, extension and improvement of the Water Works.

Date of Issue.	Amount.	When Due.	Date of Issue.	Amount.	When Due.
Oct. 1, 1869	\$150,000	Oct. 1, 1886	July 1, 1874	\$ 100,000	July 1, 1906
Mar. 1, 1870	100,000	Mar. 1, 1887	Aug. 1, 1874	100,000	Aug. 1, 1908
June 1, 1870	100,000	June 1, 1888	Oct. 1, 1874	79,382	Oct. 1, 1908
Oct. 1, 1870	145,000	Oct. 1, 1889	Aug. 1, 1875	100,000	Aug. 1, 1909
Jan. 1, 1871	50,000	Jan. 1, 1890	Jan. 1, 1876	50,000	Jan. 1, 1896
	100,000	Jan. 1, 1891	July 1, 1876	100,000	July 1, 1896
Aug. 1, 1871	50,000	Aug. 1, 1891	Sept. 2, 1878	50,000	Sept. 2, 1898
Oct. 1, 1871	100,000	Oct. 1, 1891	Apr. 25, 1879	100,000	April 25, 1898
April 1, 1872	50,000	April 1, 1887	Apr. 26, 1880	100,000	April 26, 1899
July 1, 1872	100,000	July 1, 1890	July 1, 1880	50,000	July 1, 1904
Oct. 1, 1872	100,000	Oct. 1, 1892	Sept. 1, 1880	100,000	Sept. 1, 1904
Dec. 1, 1872	100,000	Dec. 1, 1888	Nov. 26, 1880	64,000	Nov. 26, 1897
	100,000	Dec. 1, 1892	Apr. 25, 1881	100,000	April 25, 1900
Sept. 1, 1873	200,000	Sept. 1, 1903	Apr. 1, 1884	90,000	April 1, 1901
April 1, 1874	100,000	April 1, 1905	July 1, 1885	100,000	July 1, 1905
\$			Total..... \$2,828,382		

INTEREST PAID ON WATER BONDS DURING 1885.

January 19th.....	\$ 8,750.00
February 16th.....	13,750.00
March 23d.....	34,153.37
April 20th.....	1,280.00
May 16th.....	10,500.00
June 22d.....	21,500.00
July 16th.....	22,500.00
September 28th.....	34,153.37
October 19th.....	1,280.00
November 23d	10,500.00
December 21st.....	19,750.00
	<hr/>
	\$178,116.74

COST OF WATER WORKS FROM PURCHASE TO DATE.

Original Purchase.....	\$ 705,000.00
Dodge Farm.....	100,726.14
Extensions and Improvements.....	3,452,609.00
Interest on Bonds.....	2,810,744.23
Maintenance and Repairs.....	1,320,882.65
On hand January 1, 1885... , ..	83,525.24
Total.....	<u>\$8,473,487.26</u>

RECEIPTS.

Water Rates.....	\$3,883,199.39
Bonds.....	3,028,382.00
Taxes.....	1,561,905.87
Total.....	<u>\$8,473,487.26</u>

PRESENT STANDING OF WATER WORKS ACCOUNT.

Original Purchase.....	\$ 705,000.00
Real Estate, including Taxes.....	100,726.14
Engines.....	234,456 69
Holly Pumping House.....	12,092.25
Holly Pumping Machinery.....	39,000.00
New Engine House.....	82,610.32
Gas Well.....	9,406.44
Inlet Tunnel and Pier.....	530,346 56
Main Pipes, Branches, Hydrants, etc.....	2,488,442.23
Coal and Boiler House and Chimney.....	26,711.53
Gaskill Engine.....	11,354.04
Coal Tunnel connecting Upper and Lower House ...	3,351.19
New Valve House.....	910.70
Overhead Crossing.....	1,447.87
Total.....	<u>\$4,245,855.96</u>

COMPARATIVE STATEMENT.

Revenue received, coal consumed and water pumped annually for fifteen years.

Year.	Revenue.	Expenses.	Coal Consum'd Tons.	Water Pumped. Gallons.	Extensions.	Pipe.		Each Year	
						Miles.	Feet.	Miles.	Feet.
1871	\$124,865.00	\$77,456.95	3,645	2,775,752,490	284,297.84	67	4,644	...	...
1872	138,150 00	69,228.74	4,546	3,226,891,140	355,492.46	77	2,921	9	3,557
1873	168,267.20	77,747.60	4,720	3,329,193,162	308,600.46	81	4,912	4	1,991
1874	176,219.10	66,218.50	2,852.50	3,040,012,107	307,355.64	86	4,905	4	5,273
1875	184,516.48	64,862.37	3,422.67	3,828,594,027	159,098.75	91	1,591	4	1,966
1876	191,335.84	61,474.22	3,357.88	4,020,936,278	106,900.21	92	4,931	1	3,340
1877	189,296.90	57,553.27	3,249	4,267,218,162	17,014.05	93	2,631	...	2,980
1878	200,183.28	55,230 50	3,524 50	4,589 879,986	48,555.32	94	3,376	1	745
1879	205,415.75	54,497.22	3,979 75	5,291,337,520	11,457 50	97	626	2	2,530
1880	216,214 37	60,983.67	5,809	5,993,009,343	161,883.89	102	873	5	247
1881	210,031.46	76,629.09	7,192.80	6,344,182,224	201,487.10	114	4,149	12	3,276
1882	362,762.07	79,105.90	.....	7,076,212,870	160,617.81	131	524	16	1,655
1883	426,353.57	87,193.53	8,811	8,568,445,200	200,029.90	150	529	18	5,135
1884	381,581.64	81,078.88	9,128	8,789,971,200	186,623.92	164	2,931	14	2,402
1885	444,440 77	92,438 30	10,503	10,441,303,340	327,918.82	191	830	27	1,474

BALANCE SHEET, BUFFALO CITY WATER WORKS, DEC. 31, 1885.

2.	Buffalo City Water Works Construction.....	\$ 584,382.00	
3.	Buffalo City Water Works Extension Fund.....	402,300.18	
4.	Bonds Payable.....		\$2,828,382.00
5.	City Treasurer.....	96,989.72	
6.	Hydrant and Water Fund.....		642,789.90
7.	Buffalo City Water Works Extension Loan.....	2,387,500 00	
17.	Supply Account.....		424,830.46
41.	Store House.....	2,637.53	
61.	Pipe and Specials.....		1,712.26
85.	Labor Trench Account.....		174.44
91.	Lead.....		1,419.59
113.	General Street Repairs.....	7,075.14	
121.	Salaries.....	10,808.13	
122.	New Maps.....	2,431.21	
125.	Inspectors.....	6,682.43	
127.	Tapping.....	1,967.00	
128.	Hostler.....	620.00	
129.	Watchman.....	763.37	
130.	Teamster.....	875.63	
131.	Meter Repairs.....	711.67	
136.	Engineers, Lower Engine House	3,516.56	
137.	Firemen, Lower Engine House..	4,478.00	
138.	Labor, Lower Engine House....	6,433.13	
139.	Engineers, Upper Engine House	2,383 26	
140.	Firemen, Upper Engine House..	1,490.00	
141.	Labor, Upper Engine House....	1,816.89	
142.	Reservoir.....	1,206.81	
144.	Pipe Inspector.....	525.00	

145.	Louis P. Reichert.....	\$ 626.00
146.	James Ryan.....	626.00
147.	Geo. W. Miller.....	694.00
148.	Fuel.....	45,116.17
150.	Office Expenses, &c.....	2,338.44
152.	S. K. Worthington.....	28.00
154.	Advertising.....	215.45
155.	Valve Repairs.....	2,221.22
173.	Hydrant Repairs.....	23,686.02
177.	Feed.....	731.03
179.	Stable Supplies.....	504.38
181.	Horseshoeing.....	68.35
182.	Harness Repairs.....	222.00
184.	Wagon and Sleigh Repairs....	519.60
186.	Veterinary.....	95.50
188.	Joint Leaks.....	1,514.04
190.	Service Leaks.....	856.53
192.	Fountains, Free Hydrants and Horse Trough Repairs.....	949.62
195.	New Tools, Store House.....	1,586.42
198.	Repairs Tools, Store House. ...	8.83
200.	Corporation Cocks and Services.	2,594.63
202.	Repairs, Store House Building..	1,351.84
204.	Repairs, Upper Engine House	249 39
206.	Supplies, Upper Engine House..	491.76
208.	Repairs, Lower Engine House...	12,138.32
210.	Supplies, Lower Engine House..	2,022.68
213.	Repairs, Engine No. 1, Upper Engine House.....	51.41
214.	Repairs, Engine No. 2, Upper Engine House.....	575.09
215.	General Repairs, Machinery Up- per Engine House.....	21.10

217.	Repairs, Boilers Nos. 1 and 2, Upper Engine House.....	\$ 93.95	
218.	Repairs, Engine No. 1, Lower Engine House.....	67.76	
219.	Repairs, Engine No. 2, Lower Engine House.....	693.59	
220.	Repairs, Engine No. 3, Lower Engine House.....	1,466.29	
221.	Rep., Worth. Boilers, Nos. 1, 2 and 3, Lower Engine House..	322.92	
222.	Rep., Marine Boilers, Nos. 1, 2 and 3, Lower Engine House..	83.20	
223.	Repairs, Worth. Boilers, Nos. 4 and 5, Lower Engine House.	31.93	
224.	General Repairs, Machinery Lower Engine House.....	52.93	
225.	New Tools, Lower Engine House	159.13	
227.	Repairs Tools, Lower Engine	18.24	
230.	Blacksmith Shop.....	1,133.83	
234.	Repairs, Feed Pumps, Lower En- gine House.....	43.69	
237.	New Coal and Boiler Shed, Lower Engine House.....	3,451.00	
251.	City Treasurer.....	353,069.39	
254.	Water Rates.....		\$ 294,005.71
257.	Meter Rates.....		46,088.88
260.	Builders.....		1,420.33
262.	Corporation Cocks.....		6,441.50
265.	Labor and Supplies.....		1,574.12
267.	Sale of Old Material.....		864.49
269.	Rent of Dodge Farm.....		515.00
271.	Street Sprinkling.....		1,824.09
273.	Circus Rates.....		22.50

274.	Turn on Fees.....		\$108.00
275.	Flushing Sewers.....		72.77
278.	New Boxes.....		132.00
321.	Repairs of Bridges.....	\$	35.24
321.	Wagons and Sleighs Purchased..		470.00
322.	Horses Purchased		650.50
322.	Bird Island Pier Valve.....		4,416.58
323.	Inlet Pier.....		4,106.83
324.	Freight and Express.....		442.88
324.	Rent of Bell Telephone Co.....		210.13
325.	Repairs of Dodge Farm.....		50.68
325.	16 and 20-inch Pipe, Taking up and Relaying same.....		799.52
326.	Testing Worthington Engine No. 3, Lower Engine House.....		1,239.64
327.	New Gaskill Engine.....		5,523.60
328.	Foundation New Gaskill Engine		1,438.55
328.	Engine Room, New Gaskill En- gine.....		500.00
329.	Well and Tunnel, New Gaskill Engine		2,143.91
329.	River Buoy, Dumping Ground..		1,035 58
330.	Repairs, Engineer's House.....		43 63
330.	Repairs, Feed Pumps, Upper En- gine House.		155.59
331.	Old Repair Account.....		96.08
331.	Bell Waterphone.....		100.00
332.	Traveling Expenses.....		79.12
332.	Accident.....		147.00
333.	New Tunnel and Boiler house con- necting Upper and Lower En- gine House.....		3,351.19

333.	Ganson street, " Pratt & Wadham Slip "	\$ 671.10
334.	36-Inch Force Main	6,020.60
334.	New Valve House, Lower Engine House	910.70
335.	Bridge over R. R. at Lower En- gine House	1,447.87
335.	Testing New Gaskill Engine	959.48
401.	Life Saving Station	50.00
401.	Wm. Sooy Smith	325.00
402.	Seneca street, bet. Fillmore Ave. and Dole street	8,316.12
402.	Kremlin alley, Eagle street, 125 ft. South	161.86
402.	South Division street, Chestnut to Pine	169.58
403.	Seventeenth street, Connecticut, Northerly	293.64
403.	West avenue, Vermont to Albany	3,298.03
403.	Massachusetts street, Front Ave. to Ferry	4,364.87
404.	Fifteenth street, Vermont to Rhode Island	522.16
404.	Thirteenth street, Massachusetts to Hampshire	588.00
405.	Selkirk street, Clifford to Minton	382.53
405.	Seventh street, 1½-in. Wrought Iron Pipe	46.45
405.	Van Rensselaer street, Seneca to Elk	2,231.57
406.	Euclid Place, End of pipe 200 ft. South	117.17

406.	Linwood avenue, Ferry to Delaware avenue.....	\$ 2,215.06
406.	Hayward street, South to North line of Fulton.....	143.98
407.	Babcock street, Elk to Perry....	882.49
407.	Fillmore avenue, Genesee to Sycamore.....	4,057.25
407.	Summer street, Delaware, 600 ft. Westerly	712.56
408.	Best street, Jefferson to Grape...	206.71
408.	Bryant street, South Sidewalk, Westerly.....	129.34
408.	Shields avenue, Massachusetts, Southerly	295.70
409.	Balcom street, Michigan street, Westerly.....	459.10
409.	Plymouth avenue, Massachusetts, 250 ft. North.....	193.56
409.	Fulton street, Van Rensselaer to Erie R. R.....	351.47
410.	Peach street, High to North....	576.38
410.	Grape street, High to Carlton...	526.89
410.	Grape street, Carlton to Virginia	562.64
411.	Fitzgerald st, Elk to Mackinaw.	587.70
411.	Washington street, Tupper to Goodell.....	1,603.15
411.	Ellicott st., Broadway to Clinton	848.17
412.	Exchange street, Main to Washington	1,115.71
412.	South street, Louisiana to Ham- burgh.....	1,458.73
412.	Richmond avenue, Ferry to Bid- well Place.....	105.49

413.	Mulberry street, End of pipe to North street.....	\$ 272.29
413.	Carolina street, Niagara to Prospect avenue.....	380.52
413.	Niagara street, End of pipe to City Line.....	4,290.10
414.	Mulberry street, High to Carlton	662.85
414.	Sycamore street, Johnson to Sherman.....	354.02
414.	Chester street, Glenwood avenue 260 feet North.....	279.05
415.	Northampton street, Jefferson to Masten	1,146.60
415.	Carlton street, Mulberry to Lemon	486.90
415.	E. Bennett street, William to Clinton.....	545.84
416.	Monroe street, Clinton to Eagle.	424.50
416.	Orange street, High to North...	522.91
416.	Utica street, Jefferson to Dupont	299.02
417.	St. Paul street, End of pipe to Oak street.....	585.82
417.	West Summer street, Richmond to York.....	477.22
417.	Sidway street, Elk to Mackinaw.	636.33
418.	Fox street, Genesee to North....	1,361.97
418.	Dupont street, Utica to Glenwood	351.54
418.	Masten street, Dodge to Southampton	328.75
419.	Richmond avenue, Crossing Miscellaneous streets	415.02
420.	Porter street, Heacock, easterly..	322.69
420.	Eagle street, Smith to Raze.....	744.11
420.	Stanton st., Peckham to Lovejoy.	513.54

421.	Minton street, Smith to Selkirk..	\$ 520.70
421.	Smith street, Howard to Peckham	1,431.27
421.	Strauss street, Genesee to Sycamore.....	1,450.48
422.	Anderson Place, Richmond to Ashland.....	791.46
422.	Fulton street, Louisiana to Ham- burgh	1,252.80
422.	South Division street, Michigan to Erie.....	4,630.30
423.	North Division street, Michigan to Main.....	6,712.02
423.	Pearl street, U. Terrace to Eagle	5,074.85
423.	Oak street, North Division to So. Division.....	589.41
424.	South Division street, Emslie to Lord.....	873.50
424.	Niagara street, Amherst to Parish	649.02
424.	St. John's Place, Wadsworth to Orton.....	179.47
425.	Orton Place, Hudson to Pennsyl- vania.....	562.99
425.	Ashland avenue, Breckenridge to Auburn avenue.....	698.89
425.	Coit street, William to Peckham.	868.39
426.	Detroit st., Broadway to Lovejoy.	850.72
426.	Rose street, Carlton to High....	491.37
426.	Rich street, Best to Genesee....	851.49
427.	Shumway street, Howard to Wil- liam.....	456.45
427.	Rey street, Mortimer to end of st.	245.27
427.	Seventeenth street, Richmond to Connecticut	460.61

428.	Bird avenue, West avenue to Niagara.....	\$ 407.99
428.	Southampton street, Michigan to Masten.....	646.86
428.	Baynes street, Ferry 250 ft. South of Auburn.....	1,135.11
429.	Alabama street, Perry to Mackinaw.....	1,315.11
429.	Katherine street, Elk to Erie Crossing.....	1,194.84
429.	Virginia street, Fifth to Front ave.	304.01
430.	Metcalf street, Howard to Lyman	228.88
430.	Krettner street, Broadway to Lovejoy.....	333.34
430.	Clinton avenue, West avenue to Herkimer.....	928.65
431.	Efner street, End of pipe to Carolina.....	356.86
431.	Lewis street, Clinton to Lyman..	293.89
431.	Weaver alley, Goodell to Virginia	533.68
432.	Grant street, Ferry to Arnold....	297.97
432.	Urban alley, North to High. ...	416.35
432.	Seymour street, Hagerman 250 ft. West.....	239.86
433.	Main street, across Bouck and Delevan avenues.....	201.81
433.	Swan street, 10 in. at Washington	169.36
433.	Swan street, Washington to Ellicott.....	193.26
434.	Ellicott street, Seneca to Genesee	5,831.51
434.	Seneca street, Michigan to Lower Terrace.....	6,862.31
434.	Herkimer street, Albany to Ferry	7,893.06

435.	Eagle street, Michigan to Pearl..	\$ 3,607.95
435.	Clinton street, Babcock to Williams- ville Road.....	7,417.79
435.	Williamsville Road, Clinton to William.....	6,834.49
436.	Jefferson street, Ferry to Puffer..	3,844.32
436.	Ferry street, Main to Jefferson...	5,775.05
436.	Amherst street, Military Road to R. R ,.....	3,070.41
437.	Exchange st., Heacock to Smith.	4,779.62
437.	Hamburgh street, Elk to Smith..	3,495.55
437.	Hamburgh street, Exchange to Elk.....	4,838.70
438.	Lovejoy street, Williamsville Road to North Ogden.....	4,191.30
438.	Perry st., Heacock to Erie R. R.	2,143.37
438.	Utica street, Chenango, Westerly	367.97
439.	Utica street, Shields avenue, 600 ft. West.....	885.75
439.	Welker street, Utica to Glenwood	243.81
439.	Fox St., Broadway to Sycamore.	1,004.47
440.	Smith street, Broadway to Lovejoy	671.54
440.	Dart street, Forest ave. to Bradley	615.38
440.	Dearborn st., Amherst, Northerly	289.55
441.	Eaton street, End of pipe 125 ft. Easterly.....	88.67
441.	Masten st., Balcom 200 ft. North	143.73
441.	Elmwood ave., Ferry to Auburn.	882.41
442.	Marvin street, Elk to Perry.....	793.19
442.	Masten street, Northampton, 400 ft. north.....	525.84
442.	Forest avenue, Forest avenue at Insane Asylum.....	304.22

443.	Mohawk and Wilkeson streets...	\$	191.72
443.	Essex street, Massachusetts, 200 ft. south.....		190.93
443.	U. Terrace st., Court 200 ft. south		220.48
444.	Fillmore avenue, "C" street, 200 ft. south.....		334.53
444.	Lord st., S. Division to Seymour		290.07
444.	Delavan avenue, West avenue to Congress		1,246.83
445.	Illinois street, Elk to Perry.....		686.29
445.	Exchange street, Smith to Selkirk		696.42
445.	Lester street, Seneca, northerly..		431.79
446.	Maurice street, Seneca, southerly		402.08
446.	Coit street, Peckham to Lovejoy.		613.60
446.	Walden ave., Williamsville Road to Best.....		8,138.75
447.	Front avenue, Engine House to Hampshire.....		2,690.49
447.	Genesee street, Michigan to Oak		1,601.33
447.	Huron street, Pearl to Niagara..		4,498.21
448.	Elm street, Swan to Genesee....		2,051.65
448.	Lovejoy street, North Ogden to City Line.....		1,107.76
448.	Strauss street, Sycamore to Broad- way.....		1,675.14
449.	Hampshire street, Front ave. to Herkimer		10,952.42
449.	Eagle street, Pearl to Franklin..		378.86
450.	James st., Lord to Montgomery.		832.81
450.	Efner street, Maryland to Hudson		476.96
450.	Pearl street, Niagara to Huron..		4,569.15
451.	Oak street, Swan to Broadway...		3,166.37
451.	N. Ogden st., Lovejoy to William		2,389.58

336.	Gas Bills.....	\$	1,526.85	
336.	Taxes.....		1.589.96	
	Additions to Labor Trench Ac- count and Building Repairs...		2,454.38	
			<hr/>	
			\$4,252,378.04	\$4,252,378.04

TRIAL BALANCE, BUFFALO CITY WATER WORKS, DECEMBER 31, 1885.

2.	Buffalo City Water Works Con- struction.....	\$584,382.00	
3.	Buffalo City Water Works Ex- tension Fund.....	734,692.34	
4.	Bonds Payable.....		\$2,828,382.00
5.	City Treasurer... ..		7,830.07
6.	Hydrant and Water Fund.....		870.362.27
7.	Buffalo City Water Works Ex- tension Loan.....	2,387,500.00	
		<hr/>	
		\$3,706,574.34	\$3,706,574.34

SCHEDULE OF BILLS AND ACCOUNTS

APPROVED DURING THE YEAR 1885 BY THE WATER BOARD AND
PAID BY THE CITY TREASURER.

IMPROVEMENTS AND EXTENSIONS.

Date 1885.	Name.	Description.	Amount.
Jan'y 26.	G. C. Grimard.....	Pay roll, January.....	\$1,716.42
"	J. H. Shedd.....	Testing engine.....	1,239.64
Feb. 9.	C. J. Hamilton.....	Drawing boards.....	22.10
"	Ulbrich & Kingsley...	Stationery.....	38.75
"	M. E. Beebe.....	Services rendered on re- pairs pumping house	25.00
"	George B. Hayes.....	Special castings.....	4 90
"	George B. Hayes.....	Water pipe.....	431.15
"	George B. Hayes.....	Water pipe.....	19.10
"	George B. Hayes.....	Special castings.....	36.30
"	George B. Hayes.....	Water pipe.....	65.81
"	George B. Hayes.....	Special castings.....	14.27
"	George B. Hayes.....	Water pipe.....	88.73
"	George B. Hayes.....	Special castings.....	5.03
"	Bingham & Morgan...	Valve box and service boxes.....	38.05
"	Hurd & Hauenstein...	Pine lumber.....	81.14
"	Irlbacker & Davis. ...	Work as per ag't laying pipe to supply U. S. L. H. and L. S. Sta'n.	50.00
"	James Boland.....	Labor and mat'l under- pinning main wall of engine house.....	50.00
"	D. McNaughton.....	Tools, storehouse.....	11.50

Feb.	9,	Wm. S. Smith.....	Services as expert in relation to pass'g W. W. with trunk sewer....	\$ 325.00
"		Hurd & Hauenstein...	Lumber.....	61.90
"		S. Chamberlain.....	Wagon and sleigh rep's.	60.00
"		Irlbacker & Davis.....	Sundries.....	54.32
"		Howard Iron Works...	Labor and material....	84.07
"		Pratt & Co.....	Sundries.....	34.26
Feb.	23,	Norman E. Mack.....	Ad. prop. cast iron pipe.	10.25
"		Powell & Plimpton....	Sundries.....	1.61
"		Reinecke & Zesch....	Ad. prop. cast iron pipe.	6.75
"		H. H. Baker & Co....	Sundries.....	36 68
"		L. A. Walker.....	Sundries.....	16.63
"		A. R. Davidson.....	Analysis of four samples of water.....	40.00
"		G. M. Hopkins, Philadelphia, Pa.....	One copy Atlas of City of Buffalo.....	25.00
"		Hugh McDonald.....	Horseshoeing....	4.60
"		C. J. Hamilton.....	Lumber....	44.62
"		Goodyear Rubber Co..	Sundries.....	39.00
"		Farrar & Trefts.....	Repair engines, etc....	10.25
"		Farrar & Trefts.....	Repair engines, etc....	9 35
March	2,	G. C. Grimard, Cash'r.	Pay roll, February....	1,989.52
"		L. H. Knapp, Sup't. . .	Purchase of two horses.	267.63
March	9,	Niagara Bridge Works.	Iron girders, 2 columns.	411.00
"		Reinecke & Zesch.....	Advertising.....	6.75
"		Norman E. Mack.	Advertising.....	10.25
"		John Lyth.....	Sewer pipe.....	18.40
"		John C. Post.....	Oil, etc.....	40
"		John C. Harvey.....	Wagon repairs.....	56.65
"		Haas & Klein.....	Stationery.....	112.75
"		G. C. Grimard, Cash'r.	Wages, week March 7..	170.50

March 9,	Ulbrich & Kingsley...	Stationery.....	\$ 61.80
March 16,	G. C. Grimard, Cash'r.	Wages, week March 14.	160.00
"	James Boland.....	Removing wall L. E. H.	500.00
March 23,	Thomas Conboy.....	Hay.....	16.58
"	James D. Warren.....	Advertising.....	17.50
"	C. J. Frank.....	Handles.....	23.10
"	Scheeler & Sons.....	Wire buckets and scoops	33.00
"	McGrath & Bisgood...	Wire cot.....	5.00
"	Jeremiah McCarthy...	Services as diver.....	25.00
"	James D. Warren.....	Stationery.....	6.50
"	Weed & Co.....	Sundries.....	1.40
"	W. H. Baker & Co....	Manilla paper.....	71.45
"	A. Geekie.....	Hay.....	36.83
"	C. J. Hamilton.....	Lumber.....	20.50
"	Frank Williams & Co..	Coal.....	9.00
"	Telegraph Pub. Co....	Advertising.....	9.75
"	Goodyear Rubber Co..	Sundries.....	196.72
"	Irlbacker & Davis....	Sundries.....	51.61
"	Becker & Wickser....	Stable supplies.....	45.50
"	E. H. Butler.....	Advertising.....	24.00
"	G. C. Grimard, Cash'r..	W a g e s w e e k e n d i n g	
		March 23.....	271.25
"	G. C. Grimard, Cash'r..	Pay roll, March.....	2,215.50
"	G. C. Grimard, Cash'r..	W a g e s w e e k e n d i n g	
		March 28.....	239.75
April 6,	John C. Post.....	Fresco brush.....	35
"	Pratt & Letchworth...	Malleable iron.....	5.40
"	Joseph Bourgnon....	Charcoal.....	2.25
"	Lesswing & Stines	Two new wagons.....	330.00
"	F. S. Pease.....	Water colors.....	2 64
"	James Coyle.....	Wheelbarrows.....	64.00
"	E. L. Cook.....	Sheet lead.....	3.60
"	C. J. Heinold.....	Sundries.....	21.00

April	6,	G. C. Grimard, Cash'r..	Wages, week April 4...	\$ 457.62
"		B. Cunningham.....	Removing rock for new well.....	1,800.00
April	13,	Provident Wood Yard.	Hardwood.....	34.22
"		C. J. Hamilton.....	Lumber.....	87.28
"		Norman E. Mack	Two copies daily Times.	2.50
"		Haas & Klein.....	Annual Reports 1884..	241.25
"		Ulbrich & Kingsley ...	Sundries.....	32.00
"		International Ferry Co.	Use of steamer Niagara.	205.00
"		Buffalo Gas Light Co..	Coke.....	2.00
"		Buffalo Lub. Oil Co...	Oil.....	5.72
"		Hardwick & Ware.....	Labor and material....	32.50
"		G. W. Tift, Sons & Co.	Labor and material....	73.72
"		D. J. Stickney.....	Coal.....	134.14
"		G. C. Grimard, Cash'r..	Wages week end'g April 11.....	284.50
"		G. C. Grimard, Cash'r..	Wages week end'g April 18.....	252.25
"		C. J. Heinold.....	Feed.....	84.00
"		W. H. Baker & Co....	1 bale U. S. Navy oakum.....	4.35
"		Hurd & Hauenstein ...	Lumber.....	48.82
"		The Bell Telephone Co.	Rent.....	45.89
"		G. C. Grimard, Cash'r.	Weekly pay roll.....	216.98
"		G. C. Grimard, Cash'r.	Monthly pay roll.....	2,176.32
April	27,	G. B. Hayes, No. 1....	Special castings.....	76.54
May	4,	G. B. Hayes, No. 2....	Cast iron pipe.....	43.28
"		Lake Erie Boiler Works.	Sheet iron.....	11.38
"		F. S. Miller, Jr.....	4 prs. wrenches.....	13.25
"		Becker & Wickser.....	Stable supplies.....	16.20
"		G. C. Grimard, Cash'r.	Weekly pay roll.....	229.88
"		W. C. McDonald.....	One bay mare.....	175.00
May	11,	Weed & Co.....	Butts, screws and nails.	3.12

THE BUFFALO CITY WATER WORKS.

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May	11,	Buffalo Gas Light Co..Coke.....	\$	4.00
"		D. J. Stickney.....Coal.....		22.00
"		Lesswing & Stines... Wagon repairs.....		13.98
"		John Lyth.....Elbows and pipe.....		45.50
"		H. D. Taylor.....Wagon repairs....		3.01
"		J. Brendall.....Cordwcod.....		93.50
"		Young,Lockwood & Co.Office print'g station'y.		3.75
"		Atlas Milling Co.....Feed.....		10.05
"		Atlas Milling Co.....Feed.....		8.10
"		T. Conboy.....Feed.....		69.13
"		James D. Warren.....Advertising.....		3.40
"		Reinecke & Zesch.....Advertising .		2.25
"		S. Chamberlain.....Rep. steamer, wagon, etc.....		81.70
"		E. G. Felthousen.....Flue scrape and check valve.....		4.00
"		Hurd & Hauenstein...Lumber.....		38.26
"		Farrar & Trefts.....Repairing engines.....		14.20
"		Pratt & Co.....Sundries.....		85.14
"		Pratt & Co.....Sundries		29.57
"		Goodyear Rubber Co..Sundries.....		9.31
"		Howard Iron Works...Sundries.....		11.00
"		Goodyear Rubber Co..Sundries.....		55.44
"		Howard Iron Works...Sundries.....		372.31
"		Haas & Klein.....Office printing.....		69.00
"		G. C. Grimard, Cash'r.Weekly pay roll.....		335.02
"		B. Cunningham.....Excavating, etc.....		1,000.00
May	18,	G. C. Grimard, Cash'r.Weekly pay roll.....		650.43
May	25,	Ulbrich & Kingsley...Office stationery.....		39.70
"		C. Suor.....Pine plugs.....		41.24
"		H. F. Hickler.....Buoy for dumping grounds.....		101.14
"		The Eddy Valve Co...Valves.....		1,160.44

May	25,	The Eddy Valve Co...	Valves.....	\$	151.30
"		D. McNaughton	Sundries.....		16.51
"		Geo. W. Tift Sons & Co.	Repairing steamer....		11.48
"		Powell & Plimpton.....	Stable supplies.....		70
"		Pratt & Letchworth...	Storehouse tools.....		9.53
"		Lee, Smith & Moore...	Coal.....		4.00
"		C. J. Hamilton	Lumber.....		6.42
"		Hardwicke & Ware....	Sundries.....		21.30
"		G. C. Grimard, Cash'r.	Monthly pay roll.....		2,176.83
June	1,	G. C. Grimard, Cash'r.	Weekly pay roll.....		1,064 69
"		J. Wahl & Co.....	Pig lead.....		2,000.00
"		D. Kenyon.....	Freight.....		213.62
"		Bott & Hughes.....	Painting.....		125.00
"		P. Hickler.....	Locating buoy.....		100.00
"		G. C. Grimard, Cash'r.	Weekly pay roll.....		820.39
"		J. Churchyard.....	Laying floor pump house.....		895.00
June	8,	R. G. Drullard.....	Cartage..		25.00
"		Goodyear Rubber Co..	Sundries.....		22.97
"		Eddy Valve Co.....	Valves.....		387.60
"		Pratt & Letchworth....	Steel.....		2.76
"		Hurd & Hauenstein...	Lumber....		18.86
"		Lake Erie Boiler Works.	Rep. buoy and boiler..		7.04
"		M. Connor.....	108 yards sodding.....		10.80
"		Connelly Bros. & Co..	Chain and anchor.....		150.07
"		I. Supple.....	Row boat.....		60.00
"		Scatcherd & Son.....	Lumber.....		38.76
"		G. D. Barr.....	Hose.....		108.38
"		Hurd & Hauenstein...	Lumber.....		83.66
"		Lesswing & Stines.....	Repairing wagons.....		20.50
"		O. W. Clark.....	Seeds.....		14.63
"		J. C. Post.....	Sundries.....		9.67
"		Bingham & Morgan...	Valve boxes, etc.....		495.63

June	8,	Pratt & Co.....	Sundries.....	\$	86.99
"		James Boland.....	Repairing trenches....		270.96
"		J. Wahl & Co.....	Pig lead.....		385.30
"		Bell Waterphone Co...	Rent.....		50.00
"		J. Boland.....	Building foundation		
			P. H.....		1,000.00
"		B. Cunningham.....	Excavating, &c.....		2,000.00
"		G. C. Grimard, Cash'r.	Weekly pay roll.....		913.11
June	15,	C. J. Hamilton.....	Lumber.		550.00
"		Buffalo Lub. Oil Co...	Oil.....		5.61
"		J. H. Ruckle & Co....	Hemp packing....		5.88
"		Buffalo Gas Light Co...	Coke.....		16.00
"		Ulbrich & Kingsley...	Maps, &c.....		28.40
"		G. C. Grimard, Cash'r.	Weekly pay roll.....		1,078.38
June	22,	G. B. Hayes, No. 3...	Pipe and special cast's.		476.14
"		G. B. Hayes, No. 4...	Pipe and special cast's.		76.72
"		G. B. Hayes, No. 5...	Pipe and special cast's.		1,702.22
"		G. B. Hayes, No. 6...	Pipe and special cast's.		18.52
"		G. B. Hayes, No. 7...	Pipe and special cast's.		426.06
"		G. B. Hayes, No. 8...	Pipe and special cast's.		3,055.34
"		G. B. Hayes, No. 9...	Pipe and special cast's.		264.10
"		G. B. Hayes, No. 10...	Pipe and special cast's.		2,991.85
"		G. B. Hayes, No. 11...	Pipe and special cast's.		3,311.71
"		J. Boland.....	Labor at L. E. H.....		935.75
"		P. G. Straub.....	Labor at pumps.....		22.28
"		Ludlow Valve M'g Co.	Valves.....		4,80
"		Bickford & Francis....	Scrap leather.....		6.50
"		The Eddy Valve Co...	Valves.....		633.58
"		The Eddy Valve Co...	Valves.....		112.22
"		Walbridge & Co.....	Sundries.....		46.18
"		H. H. Baker & Co....	Manilla rope and chain.		56.06
"		Hardwicke & Ware....	Sundries.....		109.55
"		G. C. Grimard, Cash'r.	Weekly pay roll....		1,089.86

June	29,	G. C. Grimard, Cash'r. Monthly pay roll.....	\$2,309.34
July	6,	G. C. Grimard, Cash'r. Excavating trenches...	1,162.15
"		The Eddy Valve Co... Valves.....	241.97
"		The Eddy Valve Co... Valves.....	1,273.39
"		Lake Erie Boiler Works. Repairing boiler.....	6.60
"		P. D. Beard, assignee	
		W. E. Lock..... Stable supplies.....	27.00
"		The Eddy Valve Co... Valves.....	219.45
"		Ulbrich & Kingsley... Office Ex. and statio'y.	16.67
"		Buffalo Gas Light Co... Coke.....	16.00
"		Weeks' Scale Works... Two wheelbarrow scales	90.00
"		Bingham & Taylor.... Valve boxes, &c.....	397.06
"		J. C. Post..... Sundries.....	6.56
"		J. Boland.... Building foundation...	300.00
"		J. Churchyard.... Constructing coal hoist	945.35
"		G. C. Grimard, Cash'r. Weekly pay roll.....	954.48
"		B. Cunningham..... Con'g well and tunnel.	700.00
"		H. G. Trout..... Repair'g fire steamer..	279.09
July	13,	G. C. Grimard, Cash'r. Weekly pay roll.....	1,501.99
"		G. B. Hayes, No. 12.. Pipe and special cast's.	83.00
"		G. B. Hayes, No. 13.. Pipe and special cast's.	3,946.67
"		G. B. Hayes, No. 14.. Pipe and special cast's.	272.14
"		G. B. Hayes, No. 15.. Pipe and special cast's.	3,987.38
"		G. B. Hayes, No. 16.. Pipe and special cast's.	131.34
"		C. B. Hayes, No. 18.. Pipe and special cast's.	588.58
"		G. B. Hayes, No. 20.. Pipe and special cast's.	493.66
"		G. B. Hayes, No. 22.. Pipe and special cast's.	39.34
July	20,	The Courier Co..... Two City Directorys..	4.00
"		Buffalo Lub. Oil Co... Oil.....	1.40
"		Powell & Plimpton.... Stable supplies.....	1.38
"		C. J. Heinold..... Sundries.....	114.05
"		R. Dunbar & Son..... Rep. coal hoist L. E. H.	343.58
"		C. J. Hamilton..... Lumber.....	11.09

THE BUFFALO CITY WATER WORKS.

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uly	20,	I. S. Cassins & Co.....	Valve stems and nuts..	\$	52.35
"		The Eddy Valve Co....	Valves.....		813.81
"		J. Laycock & Son.....	Lumber.....		43.90
"		George Baer.....	Wire sieve.....		75
"		Howard H. Baker & Co.	Sundries.....		74.15
"		John Lyth.....	Pipe, elbows, &c.....		121.68
"		J. H. Ruckel & Co....	Sundries.....		5.75
"		Howard Iron Works...	Hydrants....		7,552.00
"		James Boland.....	Rep. south Boiler H..		1,063.02
"		James Boland.....	Rep. store house.....		41.80
"		James Boland.....	Relaying wall main en- gine room....		2,654.87
"		James Boland.....	Free hydrants.....		37.44
"		James Boland.....	Free hydrants.....		48.42
"		B. Cunningham.....	Excavating rock.....		500.00
"		G. C. Grimard, Cash'r.	Weekly pay roll.....		2,034.09
"		G. B. Hayes, No. 17..	Pipe and special cast's.		3,725.59
"		G. B. Hayes, No. 19..	Pipe and special cast's.		3,924.07
"		G. B. Hayes, No. 21..	Pipe and special cast's.		351.08
"		G. B. Hayes, No. 23..	Pipe and special cast's.		3,475.26
"		L. H. Knapp.....	Traveling expenses....		79.12
uly	27,	G. C. Grimard, Cash'r.	Monthly pay roll.....		2,236.74
"		G. C. Grimard, Cash'r.	Weekly pay roll.....		2,109.13
"		G. C. Grimard, Cash'r.	Wages laborers during adj't Com. Council..		8,000.00
"		G. C. Grimard, Cash'r.	Postoffice stamps.....		25.00
ug.	24,	E. L. Cook.....	Sundries.....		19.85
"		W. C. McDonald.....	Cleaning streets.....		270.00
"		A. L. Barber.....	Rep. asph. pavement..		20.00
"		A. L. Barber.....	Rep. asph. pavement..		144.00
"		A. L. Barber.....	Rep. asph. pavement..		17.00
"		Schlund & Doll.....	Two stools.....		1.50
"		Ulbrich & Kingsley...	Stationery.....		15.00

Aug. 24,	Haas & Klein.....	Water Bills, &c.....	\$ 24.00
"	Bell Telephone Co....	Tel. and messengers..	15.83
"	J. H. Ruckle.....	Sundries.....	2.65
"	Goodyear Rubber Co..	Packing	31.13
"	Buff. Lub. Oil Co.....	Oil.....	5.72
"	Holly Mfg. Co.....	36-inch pipe.....	36.00
"	G. D. Barr.....	Hose.....	210.50
"	Scatcherd & Son.....	Lumber.....	24.85
"	Lake Erie Boiler Works.	Furnace.....	59 00
"	Eddy Valve Co.....	Valves.....	988.71
"	Eddy Valve Co.....	Valves.....	517.30
"	Eddy Valve Co.....	Valves.....	806.09
"	Eddy Valve Co.....	Valves.....	468.88
"	Eddy Valve Co.....	Valves.....	247.10
"	Eddy Valve Co.....	Valves.....	337.75
"	Eddy Valve Co.....	Valves.....	313.35
"	J. H. Ullenbruch... ..	Thermometers.....	7.45
"	R. G. Drullard.....	Cartage.....	24.61
"	Pratt & Letchworth....	Steel castings.....	4 00
"	John McCarthy.....	Tarred rope.....	247.77
"	Buffalo Carting Co....	Hauling valves.....	4.00
"	John C. Post.....	Brush and oil.....	5.92
"	Law. Ginther.....	Water fountains, &c... ..	386.62
"	H. H. Baker & Co.....	Sgl. con. blocks.....	3.51
"	C. J. Frank.....	Hammer handles.....	74.65
"	C. J. Hamilton.....	Lumber.....	96.01
"	Chas. Suor.....	Turning plugs.....	46.97
"	Becker & Wickser....	Repairing harness, &c..	21.62
"	Felthousen & Russell..	Sundries.....	7.50
"	S. Chamberlain.....	Wagon repairs.....	34 98
"	S. D. Colie.....	Lumber.....	72.96
"	Hurd & Hauenstein... ..	Lumber.....	214.75
"	Bingham & Taylor....	Valve boxes and cast's.	654.99

Aug. 24,	Farrar & Trefts.....	Repairing coal hoist...	\$ 82.74
"	Farrar & Trefts.....	Repairing coal hoist...	76.07
"	Hardwicke & Ware....	Sundries.....	44.44
"	Irlbacker & Davis.....	Sundries.....	127.01
"	Irlbacker & Davis.....	Sundries.....	111.73
"	James Boland.....	Repairing trenches....	420.06
"	A. R. Ketchum.....	Valve boxes.....	452.63
"	George B. Hayes.....	Water pipe.....	3,566.03
"	George B. Hayes.....	Special castings.....	548.36
"	George B. Hayes.....	Water pipe.....	3,737.46
"	George B. Hayes.....	Special castings.	573.54
"	George B. Hayes.....	Water pipe.....	4,828.20
"	George B. Hayes.....	Special castings.....	398.09
"	George B. Hayes.....	Special castings.....	506.32
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	126.61
"	G. C. Grimard, Cash'r.	Monthly pay roll.....	2,252.05
"	James Boland.....	Building tunnel, &c...	1,000.00
"	Joseph Churchyard....	Building roof, L. P. H.	682.93
"	G. C. Grimard.....	Postage stamps.....	50.00
"	B. Cunningham.....	Excavating rock.....	1,689.00
"	Pottsville Iron & Steel		
	Co.....	Beams and channels...	1,191.90
"	G. C. Grimard.....	Weekly pay roll.....	1,842.59
Sept. 7,	G. C. Grimard.....	Weekly pay roll.....	1,970.50
"	P. McAuliffe.....	Taking up pipe.....	300.00
Sept. 14,	A. H. Brown.....	Labor on drills.....	13.54
"	H. R. Worthington....	Foot valve and suction	
		pipe.....	758.80
"	Mann Bros. & Co.....	Linseed oil.....	25.43
"	Brady & Maltby.....	Stone, &c.....	173 93
"	Williamsville Lime Co.	Cement.....	29.20
"	Joseph Bourgnon.....	Charcoal....	12.00
"	Henry Hickler.....	Buoy.....	100.00

Sept. 14,	B. Cunningham.....	Excavating, &c.....	\$ 61.00
"	Buffalo Gas Light Co..	Coke.....	12.00
"	Buffalo Gas Light Co..	Removing lamp.....	3.00
"	James D. Warren.....	Water report blanks...	20.00
"	R. G. Drullard.....	Carting.....	17.58
"	Bingham & Taylor....	Valve boxes.....	307.34
"	Buffalo Lub. Oil Co...	Oil.....	5.74
"	Weed & Co.....	Lock, bolt, &c.....	82
"	Lake Erie Boiler W'ks.	Repairing buoy.....	14.27
"	Bigelow Bros.....	Stationery.....	1.50
"	J. G. Johnson & Co...	Brass checks.....	6.25
"	Hugh McDonald.....	Horseshoeing.....	9.60
"	John C. Post.....	Sundries.....	6.09
"	D. J. Stickney.....	Coal.....	11.00
"	D. McNaughton.....	Repairing.....	338.84
"	Bott & Hughes.....	Painting.....	197.94
"	James Boland.....	Repairing trenches....	1,103.92
"	S. Somerville & Son...	Medicine and attend'e.	27.00
"	Howard Iron Works...	Hydrants.....	5,171.57
"	Machwirth Bros.....	Repairing roofs.....	939.52
"	A. R. Ketcham.....	Valve boxes.....	353.70
"	Charles Heinold.....	Stable supplies.....	260.30
"	Hardwicke & Ware....	Sundries.....	4.75
"	John Lyth.....	Pipe.....	151.71
"	S. Chamberlain	Sundries.....	15.50
"	James Boland.....	Building tunnel.....	1,000.00
"	Peter Hickler.....	Placing 16-inch pipe..	380.00
"	John T. Rees.....	Weekly pay roll.....	2,024.29
"	N. Corwith & Co.....	Lead.....	4,290.53
Sept. 21,	Becker & Wickser.....	Repairing harness, &c.	53.53
"	C. J. Heinold.....	Sundries.....	48.75
"	W. C. McDonald.....	Team.....	57.62
"	Cutler Furniture Co...	Desk.....	115.00

Sept. 21,	Ulbrich & Kingsley....	Drawing paper.....	\$ 29.20
"	National Meter Co....	Gears	2.00
"	John T. Rees.....	Weekly pay roll.....	2,281.65
"	P. McAuliffe.....	Taking up 36-in. pipe.	200.00
"	Geo. B. Hayes.....	Pipe and specials.....	3,339 16
"	Geo. B. Hayes.....	Pipe and specials.....	2,591.66
"	Geo. B. Hayes.....	Pipe and specials.....	3,550.38
Sept. 28,	S. D. Colie.....	Lumber....	128.61
"	Peter Hickler.....	For placing buoy.....	128.00
"	Hand & Johnson.....	For use of tug.....	170.00
"	W. C. McDonald.....	Cleaning streets.....	90.00
"	Powell & Plimpton....	Castor oil.....	40
"	John McLaughlin.....	Horseshoeing, &c.....	14.95
"	H. H. Baker & Co.....	Blocks and ropes.....	22.34
"	Cornell Lead Co.....	Solder, &c.....	100.59
"	Lee, Smith & Moore...	Coal.....	16.00
"	The Eddy Valve Co...	Valves.....	420.00
"	Bott & Hughes.....	Painting.....	535.00
"	James Boland.....	Building New Tunnel.	750.00
"	G. C. Grimard.....	Weekly pay roll.	2,035.49
"	G. C. Grimard.....	Monthly pay roll.....	3,801.29
"	G. C. Grimard.....	Postage, &c.....	50.00
Oct. 5,	G. C. Grimard.....	Weekly pay roll.....	2,365.12
"	E. Y. Kneeland.....	Replacing stairs.....	93.00
Oct. 12,	Howard Iron Works...	Hydrants	3,864.88
"	Pratt & Co.....	Sundries	107.64
"	Pratt & Co.....	Sundries	49.20
"	Pratt & Co.....	Sundries	216.89
"	Walbridge & Co.....	Sundries	7.90
"	Young, Lockwood & Co.	Sundries	19.35
"	Valentine & Son.....	Repairing locks, &c...	3.60
"	Hardwicke & Ware....	Pipe, &c.....	17.89
"	John Lyth.....	Vit. pipe, &c.....	105.10

Oct. 12,	Bingham & Taylor....	Boxes	\$ 235.25
"	J. H. Ruckel & Co....	Sundries	26.37
"	G. W. Tifft, Sons & Co.	Repair Fire Engine...	284.26
"	S. Chamberlain.....	Harness repairing.....	39.40
"	The Eddy Valve Co....	Valves.....	232.56
"	The Eddy Valve Co....	Valves.....	58.14
"	The Eddy Valve Co....	Valves.....	280.00
"	The Eddy Valve Co....	Valves,.....	7 50
"	The Eddy Valve Co....	Valves.....	420.00
"	The Bell Telephone Co.	Rent of telephone....	25 00
"	The Bell Telephone Co.	Telegrams, &c.....	5.93
"	Weed & Co.....	Nails, &c.....	6.05
"	Fries & Co.....	Corporation cocks....	22.62
"	Buffalo Lub. Oil Co....	Oil.....	5.45
"	John C. Post.....	Glass.....	4.98
"	Geo. Baer.....	Office screen.....	11.36
"	G. D. Barr.....	Hose.....	200.00
"	Hand & Johnson.....	Chain	159.60
"	Lake Erie Boiler Works.	Repairing Boiler.....	7.00
"	R. G. Drullard.....	Cartage.....	17.68
"	E. L. Cook.....	S. Oil.....	1.50
"	H. G. Trout.....	Repairing Hose.....	2.23
"	Scatcherd & Son.....	Lumber.....	3.36
"	Atlas Milling Co.....	Feed.....	7.30
"	Chas. W. Holloway....	Sand.....	9.38
"	James Boland.....	Repaving.....	376.98
"	James Boland.....	Repaving.....	3,533.61
"	Geo. B. Hayes, No. 34.	Specials	389.40
"	Geo. B. Hayes, No. 35.	Specials	424.96
"	Geo. B. Hayes, No. 36.	Pipe.....	3,461.57
"	Geo. B. Hayes, No. 37.	Pipe.....	2,664.10
"	Geo. B. Hayes, No. 38.	Specials	422.92
"	Geo. B. Hayes, No. 39.	Pipe.....	4,731.04

THE BUFFALO CITY WATER WORKS.

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Oct.	12,	Geo. B. Hayes, No. 40. Specials.....	\$ 622.96
"		Geo. B. Hayes, No. 41. Pipe.....	3,624.66
"		Geo. B. Hayes, No. 42. Specials.....	728.94
"		Geo. B. Hayes, No. 43. Pipe.	4,302.52
"		Geo. B. Hayes, No. 46. Specials.....	72.14
"		Geo. B. Hayes, No. 44. Specials.....	444.17
"		Geo. B. Hayes, No. 48. Specials.....	199.18
"		Geo. B. Hayes, No. 45. Pipe.....	3,783.02
"		Geo. B. Hayes, No. 47. Pipe.....	3,811.93
"		G. C. Grimard..... Weekly pay roll.....	2,062.14
Oct.	19,	Farrar & Trefts..... Repairing.....	16.69
"		Farrar & Trefts..... Repairing.....	165.95
"		Buffalo Gas Light Co.. Coke.....	32.00
"		The Courier Litho. Co. Stationery.....	8.75
"		A. R. Ketcham..... Valve boxes.....	154.20
"		The Times Co..... Daily Times.....	2.50
"		Goodyear Rubber Co.. Packing.....	31.13
"		W. C. McDonald..... Moving dirt.....	102.75
"		E. Y. Kneeland..... Labor and material....	50.34
"		H. R. Worthington.... Valve seats.....	18.45
"		E. G. Felthousen..... Repair gauge.....	2.00
"		C. J. Hamilton..... Lumber.....	21.38
"		Ulbrich & Kingsley... Stationery.....	42.00
"		John Roach..... Rope.....	86.88
"		G. C. Grimard..... Weekly pay roll.....	1,807.69
"		Lake Erie Boiler W'ks. Inlet pier.....	1,500.00
"		B. Cunningham. Excavating trench....	500.00
"		Farrar & Trefts..... 16-inch pipe for cros'g Pratt & Wadham slip	200.00
Oct.	26,	Joseph Churchyard.... L. E. H. floor.....	129.96
"		Joseph Churchyard.... L. E. H. floor.....	38.62
"		Joseph Churchyard.... Covering floor.....	309.00

Oct.	26,	J. N. Matthews.....	Advertising	\$	27.80
"		H. H. Baker & Co.....	American flag.....		10.25
"		National Meter Co.....	Meters.....		27.00
"		Buffalo Rubber Type			
		Foundry.....	Stamps, ink, &c.....		5.10
"		George B. Hayes.....	Special castings.....		119.86
"		George B. Hayes.....	Water pipe.....		3,582.46
"		G. C. Grimard.....	Weekly pay roll.....		1,891.83
"		G. C. Grimard.....	Postoffice stamps.....		25.00
"		Bott & Hughes.....	Painting.....		500.00
Nov.	2,	G. C. Grimard.....	Weekly pay roll.....		2,007.91
Nov.	9,	N. Corwith.....	Lead.....		4,001.66
"		B. Cunningham.....	Excavating, &c.....		800.00
"		G. C. Grimard.....	Weekly pay roll.....		1,964.44
"		G. H. Huntington.....	Freight, pig lead.....		150.00
Nov.	16,	G. C. Grimard.....	Weekly pay roll.....		2,576.35
Nov.	23,	G. C. Grimard.....	Weekly pay roll.....		2,681.74
Nov.	30,	Howard Iron Works...	Hydrants, &c.....		2,899.95
"		Bingham & Taylor....	Valve boxes and grates.		402.53
"		Farrar & Trefts.....	Iron sewer bridge.....		246.97
"		James Boland.....	Repairing sewers.....		829.59
"		H. H. Baker & Co.....	Flags, &c.....		35.14
"		J. H. Ruckel & Co....	Sundries		98.03
"		S. D. Colie.....	Lumber.....		324.54
"		The Eddy Valve Co...	Valves.....		424.75
"		The Eddy Valxe Co...	Valves.....		364.00
"		Tifft Furniture Co....	Furniture.....		6.50
"		James Boland.....	Repairing.....		13 20
"		A. L. Barber.....	Asph. pavement.....		21.00
"		Brush Bros.....	Brick.....		6.00
"		Thomas Conboy.....	Hay and oats.....		153.60
"		Buffalo Gas Light Co..	Relaying service.....		67.82

Nov. 30,	James Boland.....	Pipe laying, sewer and floor, pump house...	\$ 305.00
"	The Citizens' Gas Co..	Coke.....	101.25
"	R. G. Drullard.....	Carting.....	6.51
"	Peter Maischoss.....	Files.....	8.83
"	Haas & Klein.....	Envelopes.....	9.00
"	W. C. McDonald.....	Cleaning streets.....	46.73
"	W. C. McDonald.....	Cleaning streets.....	270.00
"	Brady & Maltby.....	Flagging.....	3.80
"	Haas & Klein.....	Ruled paper.....	3 50
"	Buffalo Street R. R. Co.	Rails.....	99.29
"	Lee, Smith & Moore...	Coal.....	4.00
"	D. W. Hodge.....	Roofing.....	29.98
"	Scheeler & Son.....	Wire railing.....	41.30
"	The Eddy Valve Co...	Valves.....	193.80
"	C. J. Hamilton.....	Lumber.....	82.63
"	Ulbrich & Kingsley....	Stationery.....	19.00
"	P. G. Straub.....	Labor.....	18.00
"	Buff. Rubber Type F'dy.	Stamps.....	1.20
"	A. R. Ketcham.....	Valve boxes.....	119.00
"	Williamsville Lime Co..	Cement.....	21.00
"	Williamsville Lime Co..	Cement.....	36.25
"	Chas. J. Hodge.....	Laying pipe.....	73.68
"	Hugh McDonald.....	Horseshoeing.....	10.80
"	John Lyth.....	Pipe.....	61.10
"	Goodyear Rubber Co..	Packing.....	34.50
"	G. B. Starbird.....	Iron railing.....	102.47
"	Swift & Stambach.....	Gasoline.....	5.25
"	Weed & Co.....	Sundries.....	10.66
"	John C. Post.....	Brushes.....	9.16
"	Engineer. News Pub. Co.	Advertising.....	4.20
"	Lake Erie Boiler Works.	Con. bridge at L. E. H.	978.40
"	G. C. Grimard, Cash'r..	P. O. stamps.....	50.00

Nov. 30,	G. C. Grimard, Cash'r..	Weekly pay roll.....	\$ 2,660.08
"	Lake Erie Boiler Works.	Repairs, &c.....	6.90
"	C. J. Hamilton	Lumber.....	92.02
"	J. H. Ruckel & Co....	Sundries	4.29
"	Bingham & Taylor.....	Valve boxes.....	549.23
"	Irlbacker & Davis.....	Sundries.....	55.51
"	C. J. Heinold.....	Sundries	76.65
"	C. J. Heinold.....	Sundries.....	22.90
"	S. Chamberlain.....	Wagon repairs.....	17.21
"	Weed & Co.....	Sundries.....	13.93
"	E. H. Butler.....	Advertising.....	9.00
"	Eddy Valve Co.....	Valves.....	43.60
"	Eddy Valve Co.....	Valves.....	315.49
"	Eddy Valve Co.....	Valves.....	193.80
"	Eddy Valve Co.....	Valves.....	116.85
"	Eddy Valve Co.....	Valves.....	321.92
"	Eddy Valve Co.....	Valves.....	145.35
"	Eddy Valve Co.....	Valves.....	145.35
"	Valentine & Son.....	Keys.....	3.35
"	Bell Waterphone Co...	Rent waterphone.....	50.00
"	H. H. Baker & Co....	Manilla rope.....	41.84
"	H. Diehl.....	Rent of lot.....	100.00
"	Buffalo Carting Co....	Cartage.....	17.50
Dec. 14,	Stafford & Co.....	Board experts.....	61.75
"	Hand & Johnson.....	Tug hire.....	98.00
"	P. Hickler.....	Gate at inlet pier.....	95.64
"	Ulbrich & Kingsley....	Sundries.....	7.35
"	Buffalo Gas Light Co..	Coke.....	33.75
"	J. G. Johnson.....	Brass checks.....	60
"	C. Sturm.....	Repairs.....	2.50
"	L. Ginther.....	V. sills.....	12.60
"	J. C. Post.....	Sundries.....	6.39
"	J. McCarthy.....	Tarred rope.....	71.64

Dec. 14,	Albright & Smith.....	Coal.....	\$ 17.38
"	Lake Erie Boiler W'ks.	One car.....	252 50
"	Bell Telephone Co....	Rent telephone.....	25.00
"	Bell Telephone Co....	Rent telephone.....	78.54
"	Geo. B. Hayes.....	Pipe and castings.	3,344.33
"	Geo. B. Hayes.....	Pipe and castings.....	2,585.73
"	Geo. B. Hayes.....	Pipe and castings.....	3,119.42
"	Geo. B. Hayes.....	Pipe and castings.....	2,047.79
"	Geo. B. Hayes.....	Pipe and castings.	245.70
"	Geo. B. Hayes.....	Pipe and castings.....	1,833.00
"	Geo. B. Hayes.....	Pipe and castings.....	2,563 41
"	G. C. Grimard, Cash'r..	Weekly pay roll.....	2,409 57
"	John M. Hill.....	Services expert testing new Gaskill engine..	798.80
"	B. Cunningham	Excavating.....	2,078.87
Dec. 21,	Jas. D. Warren.....	Advertising	5.25
	Jas. D. Warren.....	Printing.....	23.00
"	Haas & Klein.....	Sundries.....	52.00
"	The Courier Co.....	Sundries.....	5 25
"	Banner Milling Co....	Meal and bran.....	8.40
"	J. Elliott & Son... ..	Two horse covers.....	8.00
"	S. Somerville & Son...	Veterinary services....	30.25
"	D. J. Stickney.....	Coal.....	5.50
"	Hurd & Hauenstein...	Lumber.....	41.62
"	Fries & Co... ..	Brass Plugs.....	9.90
"	Union Water Meter Co.	Crank, gears and pin's	7.00
"	Becker & Wickser.....	Harness repairs.....	44.70
"	W. C. McDonald.....	Teaming.....	282.39
"	D. McNaughton.....	Sundries	53.29
"	Ludlow Valve Mfg. Co.	Valves, &c.....	9.72
"	Cornell Lead Co	Solder, &c.....	51.22
"	S. D. Colie.....	Lumber.....	115.90
"	Felthousen & Russel...	Sundries.....	60.63

Dec. 21,	Hardwicke & Ware.....	1x4x9 flange.....	\$ 80.00
"	F. W. Navagh.....	One scow.....	20.00
"	Star Tug Line.....	Tug hire.....	25.00
"	J. Laycock & Son.....	Lumber.....	97.20
"	C. J. Heinold.....	Sundries	54.98
"	Hand & Johnson.....	Tug hire.....	56.50
"	Bott & Hughes.....	Painting.....	113.71
"	Pratt & Co.....	Sundries.....	119.41
"	Pratt & Co.....	Sundries.....	77.68
"	Farrar & Trefts.....	Repairing machinery..	12.00
"	Farrar & Trefts.....	Repairing machinery..	354.78
"	Pratt & Co.....	Sundries.....	112.30
"	Howard Iron Works...	Hydrants, &c.....	2,411.45
"	James Boland.....	Sewer repairs.....	135.45
"	James Boland.....	Repairing.....	1,464.28
"	James Boland.....	Repairing.....	1,488.92
"	James Boland.....	Valve h'se iron floor,&c	2,239.62
"	James Boland.....	Repairing.....	601.72
"	George B. Hayes.....	Special cast's and pipe.	360.72
"	George B. Hayes.....	Special cast's and pipe.	85.78
"	George B. Hayes.....	Special cast's and pipe.	101.62
"	George B. Hayes.....	Special cast's and pipe.	297.08
"	George B. Hayes.....	Special cast's and pipe.	220.72
"	George B. Hayes.....	Special cast's and pipe.	154.62
"	George B. Hayes.....	Special cast's and pipe.	3,879.01
"	George B. Hayes.....	Special cast's and pipe.	197.56
"	George B. Hayes.....	Special cast's and pipe.	2,495.39
"	George B. Hayes.....	Special cast's and pipe.	30.44
"	George B. Hayes.....	Special cast's and pipe.	1,584.94
"	George B. Hayes.....	Special cast's and pipe.	115.06
"	George B. Hayes.....	Special cast's and pipe.	181.91
"	George B. Hayes.....	Special cast's and pipe.	127.59

Dec. 21,	D. McNaughton.....	New and old tunnel, Bird Island pier...	\$ 430.22
"	J. McCarthy.....	Submarine diver.....	762.50
"	P. Hickler.....	Bird Island pier.....	1,788.00
"	G. C. Grimard, Cash'r.	Weekly pay roll.....	2,216.22
"	G. C. Grimard, Cash'r.	Pay roll, October.....	2,257.80
"	G. C. Grimard, Cash'r.	Pay roll, November...	1,204.79
"	Machwirth Bros.....	New boiler house, &c..	313.52
Dec. 28,	G. C. Grimard, Cash'r..	Pay roll December....	2,400.12
"	G. C. Grimard, Cash'r..	Weekly pay roll.....	270.81
"	C. P. Hazard.....	Lumber.....	117.60
"	Jno. Lyth.....	Pipe, elbows, &c.....	60.80
"	Fries & Co.....	Corp. cocks and brass caps.....	396.30
"	Lesswing & Stines.....	New cutter, sleigh, &c.	145.40
"	Eddy Valve Co.....	Valves.....	185.21
"	Lake Erie Boiler Works.	Iron.....	717.78
"	B. Cunningham.....	Blasting on Fox street.	10.00
"	J. H. Allen.....	Lumber,.....	570.19
"	R. G. Drullard.....	Cartage.....	5.29
"	T. Conboy.....	Hay and oats.....	95.04
"	S. Chamberlain.....	Wagon and sleigh rep.	25.90
"	Adams & White.....	Stationery.....	127.37
"	J. H. Ruckel & Co....	Sundries.....	200.95
"	Buffalo Scale Co.....	Use of scales.....	23.00
"	Goodyear Rubber Co..	Sundries.....	129.60
"	A. Guskie.....	Hay and sea grass....	130.02
"	B. Hammersmith.....	Carrots.....	12.06
"	Geo. B. Hayes.....	Pipe and special cast's.	10.61
"	Geo. B. Hayes.....	Pipe and special cast's.	32.33
"	C. W. Miller.....	Coach hire.....	8.50
"	H. McDonald.....	Horseshoeing.....	8.00
"	James Franklin.....	Tallow.....	17.30

Dec.	28,	Williamsville Lime Co..Cement.....	\$	31.25
"		Barnes, Hengerer & Co.One mat.....		11.45
"		Eddy Valve Co.....Valves.....		84.00
"		Jno. C. Post.....Putty, &c.....		98
"		Bingham & Taylor.... Valve box, tops, &c...		66.53
"		Adams & White.....Stationery		148 48
"		Buff. Lubricating Oil Co.Oil.....		5.98
"		Felthousen & Russell..Burners		3.21
"		H. D. Taylor.....Leather washers.....		2.76
"		Weed & Co.....Wire nails, &c.....		1.25
"		G. C. Grimard, Cash'r.Weekly pay roll.....		167.97
Dec.	31,	Jos. E. Barnard, Comp.Taxes.....		1,472.46
"		Lake Erie Boiler Wor's.House on inlet pier...		1,777.11
"		G. C. Grimard, Cash'r.Wages laborers, week ending Nov. 28.....		2,287.21
"		D. W. McConnell.....Cleaning Carlton street sewer.....		167.37
"		Jos. E. Barnard, Comp.Paid taxes.....		117.50
"		W. C. McDonald.....Hoisting coal.....		89.35
				<hr/>
				\$424,830.46

MAINTENANCE AND REPAIRS.

1885.

Jan.	12,	G. C. Grimard, Cash'r.Wages laborers, week ending Jan. 3, 1885..	\$	147.63
"		G. C. Grimard, Cash'r.	"	39.75
Jan.	26,	G. C. Grimard, Cash'r.Pay roll, January..		2,891.39
Feb.	9,	G. C. Grimard, Cash'r.Postoffice stamps.....		25.00
"		Young,Lockwood & Co.Stationery.....		5.45
"		James D. Warren.....Two special rec. books.		12.00
"		Norman E. Mack.....Two cop's Daily Times, Oct. 1,'84,to Jan.1,'85.		2.50

THE BUFFALO CITY WATER WORKS.

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Feb.	9,	Norman E. Mack.....	3,000 No. 6 white env's.	\$	9.00
"		Hugh McDonald.....	Horseshoeing		9.60
"		Eddy Valve Mfg. Co..	Valves.....		73.00
"		John C. Post.....	Four lights of glass...		64
"		Goodyear Rubber Co..	Heavy tubing.....		6.00
"		J. J. McWilliams.....	Three tons coal.....		13.68
"		Atlas Milling Co.....	600 lbs. meal and 300 lbs. bran.....		8.40
"		Sheeler & Sons.....	Two Gal. wire rat traps.		2.00
"		Thomas Conboy.....	Hay and oats.....		141.98
"		Buffalo Lub. Oil Co...	Cylinder oil.....		73.50
"		H. R. Worthington....	Rep'g engine counter.		14.50
"		Hall & Sons.....	Kaoline and fire brick.		22.25
"		J. H. Ruckel & Co....	Wick packing.....		6.68
"		A. H. Brown.....	Repairs tappers' tools.		27.40
"		James Boland.....	Lab. and mat., rep. boil- ers, &c., under eng's.		60.26
"		D. McNaughton.....	Tools, store house....		24.52
"		L. H. Knapp, Supt....	Sundry advances.....		14.83
"		Hand & Johnson.....	Tug hire.....		14.00
"		S. Chamberlain	Wagon and sleigh reps.		10.44
"		Becker & Wickser.....	Harness repairs.....		38.00
"		James Boland.....	Repairing.....		18.24
"		Irlbacker & Davis.....	Sundries.....		50.87
"		Howard Iron Works...	Labor and material...		36 29
"		Pratt & Co.....	Sundries.....		23.92
Feb.	23,	Powell & Plimpton....	Sundries.....		3.73
"		G. E. Newman.....	Chimneys and wicks...		85
"		S. Somerville & Son...	Veterinary.....		30.75
"		Hugh McDonald.....	Horseshoeing		4.60
"		J. H. Ruckel & Co....	Sundries.....		26.25
"		J. J. McWilliams.....	Three tons coal.....		13.68
"		Star Oil Co.....	Oil.....		33.87

Feb. 23,	C. J. Hamilton.....	Lumber.....	\$ 18.00
"	Goodyear Rubber Co..	Sundries.....	37.09
"	Farrar & Trefts.....	Repairs, engines, &c..	91.37
"	Farrar & Trefts.....	Repairs, engines, &c..	106.77
"	Farrar & Trefts.....	Repairs, engines, &c..	241.31
"	G. C. Grimard, Cash'r.	Pay roll, February....	2,479.06
"	L. H. Knapp, Supt....	Purchase of two horses.	197.37
March 2,	G. C. Grimard, Cash'r.	Wages, week ending February 28.....	80.25
March 9,	Connelly Bros. & Co..	Use of diving rig.....	20.00
"	Buffalo Lub. Oil Co...	Oil.....	159.70
"	Hammond & Guild....	Rep'g 8 day clock....	1 50
"	H. McDonald.....	Horseshoeing	9.20
"	John C. Post	Oil, etc.....	6.80
"	Haas & Klein.....	Stationery.....	112.75
"	G. C. Grimard.....	Freight on meters.....	8.10
"	Ulbrich & Kingsley...	Stationery.....	61.80
March 23,	Courier Co.....	Stationery.....	19.00
"	Kasson Bros.....	Lub. compound.....	5.00
"	Ulbrich & Kingsley...	Stationery, &c.....	15 30
"	J. H. Ruckel & Co....	Sundries.....	33 49
"	James D. Warren.....	Stationery, &c.....	26.00
"	Weed & Co.....	Sundries.....	85
"	H. H. Baker & Co....	Manilla rope.....	60
"	Star Oil Co.....	Oil.....	31.20
"	Haas & Klein.....	Envelopes, &c.....	100.25
"	Goodyear Rubber Co..	Sundries.....	71.19
"	Irlbacker & Davis....	Sundries.....	12.09
"	Becker & Wickser....	Stable supplies.....	17.70
"	G. C. Grimard, Cash'r.	Postage stamps.....	50.00
"	G. C. Grimard, Cash'r.	Pay roll, March.....	2,931.01
April 6,	Union Water Meter Co.	Rep. on meter register.	3.00
"	S. M. Killand.....	Water gauges.....	50.00

THE BUFFALO CITY WATER WORKS.

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April	6,	C. J. Heinold.....	Sundries.....	\$	5.63
"		C. Sturm.....	Sundries.....		12.25
April	13,	Hammond & Coon....	Sundries.....		62.95
"		S. Somerville & Son...	Veterinary.....		7.50
"		Buffalo Lub. Oil Co...	Oil.....		124.03
April	27,	Hardwicke & Ware....	Labor and material...		55.38
"		J. Viergiver.....	One round globe, 8x4.		80
"		J. J. McWilliams	Coal.....		13.68
"		National Meter Co....	Meter repairs.....		7.60
"		The Bell Telephone Co.	Rent.....		25.00
"		J. D. Smith & Co.....	One doz. ¼ pockets...		30
"		E. H. Butler.....	Advertising		2.70
"		Wheeler & Davis.....	2 pieces 18" ½ chain..		2.25
"		The Telegraph Pub. Co.	Advertising.....		2.70
"		G. C. Grimard.....	Monthly pay roll.....		2,852.62
"		J. J. McWilliams.....	Coal		4,188.60
May	4,	Lake Erie Boiler Wks..	Repairing boiler.....		11.00
"		Becker & Wickser.....	Stable supplies.....		25.10
"		J. Brendall.....	Cordwood.....		3.41
"		Atlas Milling Co.....	Feed.....		7.55
"		S. Chamberlain.....	Rep.steamer,wagon,&c.		2.21
"		E. G. Felthousen.....	Flue scrape and check valve.....		8.00
May	11,	Farrar & Trefts.....	Repairing engines....		164.64
"		Farrar & Trefts.....	Repairing engines....		191.61
"		Pratt & Co.....	Sundries.....		15.30
"		Pratt & Co.....	Sundries.....		18.94
"		Goodyear Rubber Co..	Sundries.....		17.25
"		H. G. Trout.....	Repairing coal car....		34.25
"		Howard Iron Works...	Sundries.....		104.08
"		H. G. Trout.....	Sundries.....		14.61
"		Goodyear Rubber Co..	Sundries.....		44.35
"		Howard Iron Works..	Sundries.....		16.35

May	11,	J. H. Ruckel & Co.....	Sundries.....	\$	98.92
May	18,	G. C. Grimard.....	Postage stamps.....		50.00
"		W. McDonald.....	Forty loads gravel....		80.00
May	25,	Bickford & Curtis.....	One leather nozzle....		2.50
"		Fries & Co.....	514 ½ Corpora'n locks.		359.80
"		D. McNaughton.....	Sundries.....		11.00
"		Powell & Plimpton.....	Stable supplies.....		4.89
"		A. H. Brown.....	Repairing machinery..		4.55
"		H. H. Baker & Co.....	250 ft. 3" Manilla rope.		12.60
"		C. J. Hamilton.....	Lumber.....		1.10
"		Farrar & Trefts.....	Repairing boilers.....		11.65
"		The Courier Lith. Co..	Office stationery.....		20.75
"		Hardwicke & Ware.....	Sundries.....		56
"		Farrar & Trefts.....	Repairs to engine.....		322.76
"		G. C. Grimard, Cash'r.	Monthly pay roll.....		2,853.68
June	1,	J. Wahl & Co.....	Pig lead.....		1,000.00
"		J. Rees.....	Freight on pump.....		2.08
June	8,	Lesswing & Stines.....	Wagon repairs.....		66.15
"		Haas & Klein.....	Office stationery.....		14 50
"		Atlas Milling Co.....	Feed.....		8.85
"		The Telegraph Pub. Co.	Advertising		8.62
"		Goodyear Rubber Co..	Sundries.....		180.43
"		J. D. Warren.....	Advertising		5.00
"		Backus & Chard Oil Co.	Cyl. oil.....		95.72
"		E. H. Butler.....	Advertising		9.50
"		Weed & Co.....	Sundries.....		3.18
"		Hurd & Hauenstein....	Lumber.....		43.91
"		Lake Erie Boiler Wks..	Rep. buoy and boiler..		88.75
"		Goodyear Rubber T. F.	Office stationery.....		10.25
"		John C. Post.....	Sundries.....		13.22
"		S. Chamberlain	Repairing wagons.....		45.56
"		J. J. McWilliams.....	Coal.....		2,057.70
"		H. R. Worthington....	Repairing pump.....		101.93

THE BUFFALO CITY WATER WORKS.

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June	8,	James Boland.....	Repairing trenches....	\$ 417.87
June	15,	N. E. Mack.....	Advertising.....	7.08
"		Buffalo Lub. Oil Co....	Oil.....	68.38
"		Haas & Klein.....	Stationery.....	9.00
"		J. Lyth.....	Pipe and elbows.....	54.91
"		Buffalo Gas Light Co..	Coke.....	1.17
June	22,	A. H. Brown	Repairing tools.....	2.60
"		W. Walruth, N. Y.....	Sawdust.....	12.75
"		Fries & Co.....	Corp. cocks and plugs.	383.59
"		T. Conboy.....	Hay	50.36
"		Holly Manf'g Co.....	Two valve boxes.....	13.00
"		G. C. Grimard, Cash'r.	Postage stamps.....	50.00
June	29,	G. C. Grimard, Cash'r.	Monthly pay roll.....	3,119.68
July	6,	H. G. Trout.....	Rep'g engine L. E. H.	1.37
"		H. G. Trout.....	Rep'g engine L. E. H.	6.44
"		H. G. Trout.....	Rep'g engine L. E. H.	55.67
"		H. G. Trout.....	Rep'g engine L. E. H.	9.11
"		Haas & Klein.....	Office ex. and stat'ery.	16.50
"		Reinecke & Zesch.....	Advertising.....	4.50
"		Lake Erie Boiler Wk's.	Repairing boiler.....	15.01
"		P. D. Beard, assignee W.		
		E. Lock.....	Stable supplies.....	5.05
"		Hardwicke & Ware....	Rep'g pump L. E. H..	1.61
"		T. Conboy.....	Hay	12.80
"		J. Churchyard.....	Repairing bellows.....	4.00
"		J. Churchyard.....	Flooring.....	8.80
"		J. C. Harvey.....	Wagon repairs.....	4.10
"		The Courier Co.....	Advertising	22.70
"		John C. Post.....	Sundries.....	6.60
July	20,	The Courier Co.....	Two City Directories..	4.00
"		Buffalo Lub. Oil Co....	Oil.....	48.50
"		Powell & Plimpton....	Stable supplies.....	4.55
"		Fred. C. Schotten....	Rebinding books.....	18.75

July	20,	E. G. Felthousen.....	Cyl. oil.....	\$	19.25
"		Bell, Lewis & Yates....	Coke.....		143.47
"		A. H. Brown.....	Corp. cocks and service.		13.80
"		Fries & Co.....	Tap coupling.....		4.80
"		A. R. Ketcham	Valve boxes.....		67.30
"		Wardwicke & Ware....	Sundries....		17.18
"		J. H. Ruckel & Co....	Sundries.....		41.66
"		Albright & Smith.....	Coal.....		8,000.00
July	27,	G. G. Grimard.....	Monthly pay roll.....		2,973.48
Aug.	24,	Fries & Co.....	Corporation cocks....		7.80
"		Fries & Co.....	Corporation cocks. ...		70.15
"		Fries & Co.....	Corporation cocks....		357.70
"		Ulbrich & Kingsley....	Stationery.....		10
"		Haas & Klein.....	Water bills.....		134.00
"		H. G. Trout.....	Sundries.....		2.04
"		Holly Manufact'g Co..	Sundries		7.90
"		J. H. Ruckel & Co....	Sundries.....		39.25
"		Buffalo Lub. Oil Co....	Oil.....		132.35
"		Becker & Wickser....	Repairing harness....		21.63
"		Felthousen & Russell..	Sundries.....		9.37
"		Farrar & Trefts.....	Repairing coal hoist...		45.66
"		H. G. Trout.....	Repairing engine No. 2.		25.97
"		Hardwicke & Ware....	Sundries.....		16.00
"		Irlbacker & Davis....	Sundries.....		8.16
"		Irlbacker & Davis....	Sundries.....		8.50
"		James Boland.....	Repairing trenches....		840.12
"		G. C. Grimard.....	Monthly pay roll.....		3,004.06
"		Albright & Smith.....	Coal.....		7,000.00
Sept.	14,	A. H. Brown.....	Labor on drills.....		13.00
"		Goodyear Rubber Co..	Gasket		1.78
"		Kasson Bros.....	Lub. Compound.....		6.00
"		Buffalo Lub. Oil Co....	Oil.....		105.95
"		J. H. Ruckel & Co....	Sundries.....		15.26

THE BUFFALO CITY WATER WORKS.

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Sept.	14,	Weed & Co.....	Lock, bolt, &c.....	\$	46
"		James Boland.....	Repairing trenches....	55	1.96
"		Machwirth Bros.....	Repairing roof.....		75
"		Hardwicke & Ware....	Sundries.....		20.08
Sept.	21,	Albright & Smith.....	Coal.....	7,000.	.00
Sept.	28,	Peter Maischoss.....	Re-cutting files.....		17.30
"		G. C. Grimard, Cash'r..	Monthly pay roll.....	1,900.	.65
Oct.	12,	Pratt & Co.....	Sundries.....		1.68
"		Young, Lockwood & Co.	Sundries.		26.55
"		Valentine & Son.....	Repairing lock, &c....		25
"		J. H. Ruckel & Co....	Sundries.....		5.00
"		S. Chamberlain.....	Wagon repairs.....		60
"		Fries & Co.....	Corporation cocks....	49	1.40
"		Buffalo Lub. Oil Co...	Oil		53.13
"		Jas. D. Warren.....	Printing		43.00
"		James Boland.....	Repairing.....		188.50
"		Albright & Smith.....	Coal	7,000.	.00
Oct.	19,	Farrar & Trefts.....	Repairing.....		55.16
"		Farrar & Trefts.....	Repairing.		60.90
"		D. A. Bailey.....	Telephone service....		10.70
"		Goodyear Rubber Co..	Packing		4.25
"		Ulbrich & Kingsley....	Stationery.....		12
Oct.	26,	Jabesh Harris.....	Soft soap.....		32.50
Nov.	16,	Albright & Smith.....	Coal.....	3,000.	.00
Nov.	30,	J. H. Ruckel & Co....	Sundries		11.90
"		Joseph Rehm.....	Washing towels.....		9.00
"		Fries & Co.....	Corporation cocks....	35	8.40
"		Ulbrich & Kingsley...	Stationery.....		1.50
"		Buffalo Lub. Oil Co...	Oil.....		120.56
"		Albright & Smith.....	Coal contract.....	4,000.	.00
"		Lake Erie Boiler Works.	Repairs, &c.....		45.33
Dec.	14,	E. G. Felthousen.....	Sundries		14.70
"		Albright & Smith.....	Full of coal contract..	2,014.	.82

Dec. 21,	Jabesh Harris.....	Soft Soap.....	\$ 10.00
"	Buffalo Lub. Oil Co....	Oil	80.90
"	Bickford & Francis....	Oak leather.....	3.75
"	Farrar & Trefts.....	Repairing machinery..	87.92
"	Farrar & Trefts.....	Repairing machinery..	219.57
"	Pratt & Co	Sundries.....	6.10
"	G. C. Grimard, Cash'r.	Pay roll, October.....	3,015.62
"	G. C. Grimard, Cash'r.	Pay roll, November...	2,909.60
Dec. 28,	G. C. Grimard, Cash'r.	Pay roll, December....	3,300.26
"	Lake Erie Boiler W'ks.	Labor	3.50
"	W. G. Dixon.....	Boiler Compound.....	5 00
"	J. H. Ruckel & Co....	Sundries	12.29
"	Buffalo Lub. Oil Co....	Oil	53.63
Dec. 31,	Jos. Barnard, Comp....	Gas bills.....	1,526.85
			<hr/>
			\$92,438.30

SERVICES.

The total number of services in the City, January 1st, 1886, is twenty-two thousand seven hundred and thirty-five. The number of new services during the year being three thousand one hundred and ninety-eight.

Respectfully submitted,

JOHN T. REES.

DISTRIBUTION

OF THE

WATER DEPARTMENT

FOR THE

YEAR 1885.



3

1	75	48	21	2	9	524
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THE NEW YORK
PUBLIC LIBRARY
ASTOR, LENOX AND
TILDEN FOUNDATIONS

VALVES.

Remarks.

6 Inch.	10 Inch.	12 Inch.	16 Inch.	20 Inch.	24 Inch.	30 Inch.	36 Inch.	Total.	
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W. W. W. W. W.
P. L. L. L. L. L.
W. W. W. W. W.
P. L. L. L. L. L.

FIRE HYDRANTS.

The number of Fire Hydrants placed during the year on new line of mains was two hundred and sixty-nine, of which one hundred and ninety-five was on the reservoir supply and seventy-four on the high service supply, making the total number in the city on January 1st, 1886, one thousand seven hundred and eighty-three. Following schedule gives location of hydrants set during 1885 :

HYDRANTS SET ON NEW MAINS.

Location.	System.
Alabama street, southwest corner of Fulton.....	R.
Amherst street, south side, 300 feet east of Military Road...	"
Amherst street, south side, 300 feet west of Grant.....	"
Amherst street, southwest corner of Grant.....	"
Amherst street, north side, 150 feet west of N. Y. C. R. R....	"
Amherst street, northeast corner of Germania.....	"
Amherst street, northeast corner of Peter.....	"
Amherst street, northeast corner of Howell.....	"
Amherst street, northeast corner of Reservation.....	"
Amherst street, northeast corner of Bush.....	"
Anderson Place, southeast corner of Howard avenue.....	H.
Anderson Place, southwest corner of Ashland avenue.....	"
Ashland avenue, southwest corner of Breckenridge.....	"
Ashland avenue, southwest corner of Auburn avenue.....	"
Babcock street, southwest corner of Perry.....	R.
Balcom street, northwest corner of Michigan.....	H.
Baynes street, southwest corner of Breckenridge.....	"
Baynes street, southwest corner of Auburn avenue.....	"
Carolina street, southeast corner of Niagara.....	R.
Clinton street, southwest corner of Babcock.....	"
Clinton street, south side, 275 feet east side of Babcock.....	"
Clinton street, south side, 575 feet east side of Babcock.....	"

Location.	System.
Clinton street. south side, opposite Scoville.....	R.
Clinton street, south side, opposite Baitz avenue.....	"
Clinton street, south side, 600 feet east of Baitz avenue.....	"
Clinton street, south side, 700 feet west of Williamsville Road	"
Clinton street, southwest corner of Williamsville Road.....	"
Clinton avenue, northeast corner of DeWitt.....	"
Clinton avenue, northwest corner of Herkimer.....	"
Clinton avenue, north side, 300 feet east of DeWitt.....	"
Coit street, east side, 300 feet north of Peckham.....	"
Coit street, southeast corner of Lovejoy.....	"
Coit street, west side, 300 feet north of William.....	"
Coit street, west side, 600 feet north of William.....	"
Dart street, west side, 375 feet north of Forest avenue.....	"
Dart street, south west corner of Bradley.....	"
Delavan avenue, northwest corner of DeWitt... ..	"
Delavan avenue, north side, 300 feet east of DeWitt.....	"
Delavan avenue, northwest corner of Herkimer.....	"
Delavan avenue, northwest corner of Congress.....	"
Detroit street, northwest corner of Lovejoy.....	"
Detroit street, west side, 300 feet south of Broadway.....	"
Detroit street, west side, 600 feet south of Broadway.....	"
Dupont street, southwest corner of Glenwood avenue.	H.
Eagle street, northeast corner of Smith.....	R.
Eagle street, northwest corner of Montgomery.....	"
Eagle street, northwest corner of Raze.....	"
Eagle street, northwest corner of Michigan.....	"
Eagle street, northwest corner of Elm.....	"
Eagle street, northeast corner of Oak.....	"
Eagle street, southwest corner of Ellicott.....	"
Eagle street, south side, 125 feet west of Main.....	"
Efner street, east side, 250 feet north of Maryland.....	"
Elk street, south side, opposite Marvin.....	"

Location.	System.
Ellicott street, southwest corner of Huron.....	R.
Ellicott street, southwest corner of Orlando alley.....	"
Ellicott street, southwest corner of Swan.....	"
Ellicott street, southwest corner of Mohawk.....	"
Elm street, southwest corner of Swan.....	"
Elm street, southwest corner of Booth alley.....	"
Elmwood avenue, northwest corner of Breckenridge.....	H.
Elmwood avenue, southwest corner of Auburn avenue.....	"
Erie street, north side, 250 feet west of Main.....	R.
Exchange street, north side, 250 feet east of Heacock.....	"
Exchange street, north side, 300 feet east of VanRensselaer.	"
Exchange street, northwest corner of Hydraulic.....	"
Exchange street, northwest corner of Griffin.....	"
Exchange street, northeast corner of Heacock.....	"
Exchange street, south side, 350 feet west of Selkirk.....	"
Ferry street, south side, 225 feet east of Main.....	H.
Ferry street, south side, 300 feet east of Michigan.....	"
Ferry street, south side, 125 feet east of Verplank.....	"
Ferry street, southwest corner of Jefferson.....	"
Ferry street, southwest corner of Masten.....	"
Ferry street, southwest corner of Michigan.....	"
Ferry street, northwest corner of Purdy.....	"
Fillmore avenue, west side, opposite B street.....	R.
Fillmore avenue, west side, opposite Peterson.....	"
Fillmore avenue, northwest corner of Sycamore.....	"
Fitzgerald street, northeast corner of Mackinaw.....	"
Front avenue, junction of Seventh.....	H.
Fulton street, south side, 300 feet east of Hayward.....	R.
Fulton street, north side, 100 feet west of Railroad track.....	"
Fulton street, south side, 300 feet east of Alabama.....	"
Fox street, northwest corner of High street.....	"
Fox street, west side, 300 feet north of High.....	"

Location.	System.
Fox street, southwest corner of North.....	R.
Fox street, east side, 450 feet south of Sycamore.....	"
Fox street, east side, 400 feet north of Broadway.....	"
Fox street, west side, 300 feet north of North.	"
Genesee street, southeast corner of Parade Circle.....	H.
Grant street, southwest corner of Arnold.....	"
Hamburgh street, east side, at the mill race south side.....	R.
Hamburgh street, east side, 300 feet north of South.....	"
Hamburgh street, east side, 400 feet south of Sandusky.....	"
Hamburgh street, southwest corner of Sandusky.....	"
Hamburgh street, southwest corner of Scott.....	"
Hamburgh street, southwest corner of Mackinaw.....	"
Hamburgh street, northwest corner of Miami.....	"
Herkimer street, northwest corner of Albany, facing Albany.	H.
Herkimer street, southwest corner of Arkansas.....	"
Huron street, southeast corner of Niagara.....	R.
Huron street, south side, opposite Prospect avenue.....	"
Huron street, southwest corner of Morgan.....	"
Huron street, southwest corner of Delaware.....	"
Huron street, southeast corner of Franklin.....	"
Huron street, southwest corner of Pearl, Double Hyd.....	"
Illinois street, east side, opposite Mary.....	"
James street, northwest corner of Smith.....	"
James street, northwest corner of Montgomery.....	"
Jefferson street, west side, 500 feet north of Ferry.....	H.
Jefferson street, west side, 525 feet south of Puffer.....	"
Jefferson street, northeast corner of Puffer.....	"
Katharine street, west side, 350 feet south of Elk.....	R.
Katharine street, northwest corner of Mackinaw.....	"
Katharine street, northwest corner of Sandusky.....	"
Lester street, west side, 350 feet north of Seneca:.....	"
Linwood avenue, east side, 400 feet north of Ferry.....	H.

Location.	System.
Linwood Avenue, southwest corner of Balcom street.....	H.
Linwood Avenue, west side, 450 feet north of Balcom street..	"
Linwood Avenue, southwest corner of Bouck avenue.....	"
Linwood Avenue, southwest corner of Delavan avenue.....	"
Lord street, west side, 100 feet north of Seymour street.....	R.
Lovejoy street, south side, 450 feet east of Williamsville R'd.	"
Lovejoy street, south side, 900 feet east of Williamsville R'd.	"
Lovejoy street, south side, 425 feet west of "A" street.....	"
Lovejoy street, southwest corner of "A" street.....	"
Lovejoy street, southwest corner of Benzinger.....	"
Lovejoy street, southwest corner of Gold.....	"
Lovejoy street, southwest corner of Davey.....	"
Lovejoy street, southwest corner of Goethe.....	"
Lovejoy street, southwest corner of Schiller.....	"
Main street, east side, 50 feet south of Ferry.....	H.
Main street, southwest corner of Erie.....	R.
Massachusetts street, southeast corner of Front avenue.....	H.
Massachusetts street, southeast corner of Fifteenth.....	"
Massachusetts street, southeast corner of Shields avenue....	"
Massachusetts street, southeast corner of Brayton.....	"
Massachusetts street, southwest corner of Essex.....	"
Massachusetts street, northeast corner of Seventh.....	"
Masten street, southwest corner of Eaton.....	"
Maurice street, west side, 500 feet south of Seneca.....	R.
Mulberry street, southwest corner of North.....	H.
Niagara street, northeast corner of Parish.....	R.
Niagara street, east side, 275 feet south of Amherst.....	"
Niagara street, southeast corner of Collaton.....	"
Niagara street, east side, in center of lot No. 59.....	"
Niagara street, east side, south line of lot No. 56.....	"
Niagara street, east side, in center of John Esser lot No. 1...	"
Niagara street, east side, 650 feet south of city line.....	"

Location.	System.
Northampton street, southeast corner of Masten.....	H.
Northampton street, south side, 475 feet east of Masten.....	"
Northampton street, south side, 500 feet west of Jefferson...	"
North Division street, southeast corner Main.....	R.
North Division street, northwest corner Washington, D. H...	"
North Division street, southwest corner of Ellicott.....	"
North Division street, southwest corner of Oak.....	"
North Division street, southwest corner of Elm.....	"
North Division street, southwest corner of Michigan.....	"
North Ogden street, northwest corner of William.....	"
North Ogden street, west side, 500 feet north of William.....	"
North Ogden street, northwest corner of Luddington.....	"
North Ogden street, west side, 425 feet north of Ludington..	"
North Ogden street, southwest corner of Lovejoy.....	"
Oak street, northwest corner of South Division.....	"
Orton Place, west side, 300 feet north of Hudson.....	H.
Orton Place, northwest corner of Hudson.....	"
Pearl street, northwest corner of Court.....	R.
Pearl street, northwest corner Express alley.....	"
Pearl street, southeast corner Niagara.....	"
Pearl street, southwest corner of Church.....	"
Pearl street, west side, 175 feet south of Swan.....	"
Pearl street, northwest corner Terrace.....	"
Pearl street, southwest corner of Huron, double hydrant.....	"
Pearl street, west side, 200 feet south of Huron.....	"
Pearl street, west side, 250 feet south of Mohawk.....	"
Pearl street, west side, 225 feet north of Court.....	"
Pearl street, northwest corner of Eagle.....	"
Pearl street, northwest corner of Seneca.....	"
Perry street, north side, 300 feet east of Heacock.....	"
Perry street, north side, 100 feet west of Erie Railway.....	"
Perry street, southeast corner of Van Rensselaer.....	"

Location.	System.
Rey street, south side, 350 feet east of Mortimer.....	R.
Rich street, west side, 300 feet north of Genesee.....	H.
Rich street, west side, 600 feet north of Genesee.....	"
Richmond avenue, southwest corner Breckenridge.....	"
Richmond avenue, southwest corner Auburn avenue.....	"
Seneca street, south side, 50 feet east of N. Y., L. E. & W. railroad track.....	R.
Seneca street, south side, 250 feet east of N. Y., L. E. & W. railroad track.....	"
Seneca street, southwest corner Peabody.....	"
Seneca street, southwest corner of Maurice.....	"
Seneca street, southwest corner of Babcock.....	"
Seneca street, south side, opposite east line of Troupe.....	"
Seneca street, south side, opposite Ellicott.....	"
Seneca street, southwest corner of Dole.....	"
Seneca street, southwest corner of Washington	"
Seneca street, southwest corner of Michigan, 4 feet.....	"
Seneca street, southeast corner of Franklin.....	"
Seneca street, northeast corner of Berrick alley.....	"
Seneca street, northwest corner of Main.....	"
Seneca street, south side, opposite Center.....	"
Seymour street, north side, 300 feet west of Hagerman.....	"
Sidway street, east side, 350 feet south of Elk.....	"
Sidway street, northeast corner of Mackinaw.....	"
Smith street, west side, 375 feet south of Broadway.....	"
Smith street, northwest corner of Lovejoy.....	"
Smith street, west side, 300 feet north of Howard.....	"
South street, northwest corner of Hamburg.....	"
South street, northeast corner of Vandalia.....	"
South street, northeast corner of Alabama.....	"
South street, northeast corner of Vincennes.....	"
South street, northeast corner of Tennessee.....	"

Location.	System.
South street, northeast corner of Kentucky.....	R.
Southampton street, south side, 300 feet east of Michigan...	H.
Southampton street, southwest corner of Masten.....	"
South Division street, southwest corner of Michigan.....	R.
South Division street, southwest corner of Elm.....	"
South Division street, southwest corner of Bond.....	"
South Division street, southwest corner of Ellicott.....	"
South Division street, southwest corner of Washington.....	"
South Division street, southwest corner of Lord.....	"
St. Paul street, northwest corner of Oak.....	H.
St. Paul street, northwest corner of Ellicott.....	"
St. Paul street, north side, 300 feet east of Main.	"
Strauss street, west side, 325 feet north of Broadway.....	R.
Strauss street, west side, 600 feet north of Broadway.....	"
Strauss street, west side, 600 feet south of Sycamore.....	"
Strauss street, west side, 300 feet south of Sycamore.....	"
Strauss street, northwest corner of Sycamore.....	"
Strauss street, west side, 300 feet north of Sycamore.....	"
Strauss street, west side, 600 feet north of Sycamore.....	"
Strauss street, west side, 600 feet south of Genesee.....	"
Strauss street, west side, 300 feet south of Genesee.....	"
Summer street, north side, 425 feet west of Delaware avenue.	H.
Summer street, north side, 775 feet west of Delaware avenue.	"
Swan street, south side, opposite Oak.....	R.
Terrace (Upper), east side, 225 south of Court.....	"
Thirteenth street, southwest corner of Hampshire.....	H.
Urban alley, west side, 300 feet north of High.....	"
Urban alley, west side, 600 feet north of High.....	"
Utica street, southwest corner of Dupont.....	"
Utica street, south side, 300 feet west of Chenango.....	"
Utica street, northwest corner of Shields avenue.....	"
Van Rensselaer street, southeast corner of Seneca.....	R.

Location.	System.
Van Rensselaer street, east side, 50 feet north of Carroll.....	R.
Van Rensselaer street, northeast corner of Exchange.....	"
Van Rensselaer street, west side, 150 feet south of Mill.....	"
Van Rensselaer street, southwest corner of Porter.....	"
Van Rensselaer street, southeast corner of Fulton.....	"
Van Rensselaer street, southeast corner of Scott.....	"
Walden avenue, northwest corner of Keifer.....	H.
Walden avenue, southwest corner of Lathrop.....	"
Walden avenue, northwest corner of Barthel.....	"
Walden avenue, southwest corner of Moselle.....	"
Walden avenue, southwest corner of———.....	"
Walden avenue, southwest corner of———.....	"
Walden avenue, southwest corner of Doll avenue.....	"
Walden avenue, northwest corner of Williamsville Road.....	"
Washington street, east side, 300 feet south of Goodell.....	"
Washington street, northwest corner of North Division.....	"
Weaver alley, southwest corner of Virginia.....	"
Welker street, southwest corner Glenwood avenue.....	"
West avenue, northwest corner of School.....	R.
West avenue, southwest corner of Massachusetts.....	H.
Williamsville Road, east side, 350 feet north of Clinton.....	R.
Williamsville Road, east side, 1,050 feet north of Clinton....	"
Williamsville Road, east side, 650 south of Dingens.....	"
Williamsville Road, east side, 1,100 feet north of Dingens....	"
Williamsville Road, southeast corner of Dingens.....	"

R. Reservoir supply..... 195

H. High service..... 74

Hydrants set in previous years..... 269
1,514

Total hydrants in city December 31st, 1885.... 1,783

FIRE RESERVOIRS.

Location.	Number.
Main street, in front of Spaulding's Exchange.....	I
Main street, in front of Lafayette Park.....	I
Main street, in front of churches.....	I
Main street, corner of Exchange.....	I
Main street, corner of Seneca.....	I
Main street, corner of Swan.....	I
Main street, corner of North Division.....	I
Main street, corner of Eagle.....	I
Main street, corner of Genesee.....	I
Seneca street, corner of Chicago.....	I
Goodell street, corner of Washington.....	I
Niagara Square, Junction of Genesee and Court.....	I
Niagara street, corner of Mohawk.....	I
Eagle street, corner of Genesee.....	I
Broadway, in front of Arsenal.....	I
Clinton street, corner of Union.....	I
Total.....	16

DRINKING FOUNTAINS.

Location.	Number.
Delaware avenue, corner of Court.....	I
Main street, corner Seneca.....	I
Main street, corner of Erie.....	I
Main street, opposite Court.....	I
Main street, corner of Huron.....	I
Michigan street, corner of Seneca.....	I
Michigan street, corner of Broadway.....	I
Michigan street, corner of Genesee.....	I

THE BUFFALO CITY WATER WORKS.

121

Location.	Number.
Perry street, at Elk Street Market.....	I
Washington Market.....	I
	—
Total.....	10

HORSE FOUNTAINS.

Location.	Number.
Broadway, in front of Arsenal.....	I
Elk street, between East and West Market.....	I
Elk street, corner of Hamburg.....	I
Forest avenue, opposite No. 54.....	I
Genesee street, between Lower and Upper Terrace.....	I
Genesee street, corner of Ellicott.....	I
High street, corner of Genesee.....	I
Main street, corner of Ferry.....	I
Main street, corner of Steele.....	I
Maryland street, corner Fifth (old style).....	I
Niagara street, between Eagle and Franklin.....	I
Niagara street, corner of Prospect avenue.....	I
Niagara street, corner of Clinton avenue.....	I
Niagara street, corner of Amherst (old style)	I
Niagara street, corner of Austin (old style).....	I
Niagara street, corner Hertel avenue.....	I
Swan street, at junction with Seneca.....	I
West avenue, between York and Porter avenue.....	I
York street, corner of Thirteenth.....	I
	—
Total	19

FREE HYDRANTS.

Location.	Number.
Chicago, northwest corner of Mackinaw.....	I
Chicago, southeast corner of Elk.....	I

Location.	Number.
Chicago, southeast corner of Fulton.....	1
Elk, northeast corner of Columbia.....	1
Elk, southeast corner of Moore.....	1
Elk, southeast corner of Hamburgh.....	1
Exchange, north side, between Jefferson and Hamburgh.....	1
Exchange, northwest corner of Heacock.....	1
Fifth, northwest corner of Georgia.....	1
Fourth, northeast corner of Carolina.....	1
Louisiana, east side, between Ohio and South.....	1
Louisiana, northeast corner of Sandusky.....	1
Mackinaw, southeast corner of Tennessee.....	1
Mackinaw, southwest corner of Vandalia.....	1
Perry, southwest corner of Illinois.....	1
Perry, southeast corner of Hamburgh.....	1
Perry, southwest corner of Hayward.....	1
Scott, southwest corner of Illinois.....	1
Total.....	18

Schedule of Water Pipe Laid in the City, giving Location, Size of Pipe, and on What System.
EAST SIDE.

Street.	From	To	Size of Pipe, Inches.	E S W	Location of Pipe.
Abbott Road.....	Smith.....	1350 feet easterly.....	6	R	26 ft. n. of s. line.
Adams.....	Clinton.....	William	6	R	22 ft. e. of w. line.
Adams	William.....	Brown.....	20	R	19 ft. e. of w. line.
Adams	Brown.....	Genesee.....	6	R	14 ft. w. of e. line.
Alabama.....	Seneca.....	Carroll.....	4	R	16 ft. e. of w. line.
Alabama	Mackinaw.....	300 feet southerly.....	6	R	18 ft. w. of e. line.
Alabama	Perry.....	Mackinaw.....	6	R	44 ft. e. of w. line.
Ash	Genesee.....	Broadway	4	R	33 ft. w. of e. line.
Babcock	William.....	Clinton.....	6	R	45 ft. w. of e. line.
Babcock	Elk.....	Perry	10	R	35 ft. w. of e. line.
Beckwith.....	Adams	Sycamore	6	R	20 ft. n. of s. line.
Beech	Virginia.....	Carlton.....	6	R	36 ft. w. of e. line.
Bennett.....	William.....	Broadway.....	4	R	35 ft. e. of w. line.
Berlin.....	High.....	Best	6	H	26 ft. e. of w. line.
Best	Main.....	Masten.....	6	H	25 ft. s. of n. line.
Best	Jefferson.....	Grape	4	H	.....
Best	Jefferson.....	Fox	10	H	24 ft. n. of s. line.
Best	Fox.....	Genesee.....	8	H	23 ft. n. of s. line.
Blossom alley.....	Huron.....	Broadway.....	4	R	15 ft. e. of w. line.
Bond.....	Clinton.....	Howard	4	R	18 ft. w. of e. line.
Boston alley.....	Tupper	Virginia	4	H	7 ft. e. of w. line.
Bristol	Spring.....	Jefferson.....	6	R	37 ft. s. of n. line.
Bristol	Emslie.....	Bond.....	4	R	44 ft. s. of n. line.
Broadway.....	Lafayette.....	Ellicott.....	6	R	50 ft. s. of n. line.
Broadway	Ellicott.....	Pratt.....	16	R	50 ft. s. of n. line.
Broadway	Pratt.....	Fillmore avenue.....	10	R	{ 35 ft. s. of n. line. 50 ft. s. of n. line.

Schedule of Water Pipe Laid in the City, giving Location, Size of Pipe, and on What System.

Street.	From	To	Size of Pipe. Inches.	System.	Location of Pipe.
Broadway.....	Sherman.....	Smith.....	4	R	5 ft. n. of s. line.
Brown.....	Adams.....	Jefferson.....	20	R	20 ft. n. of s. line.
Bundy alley.....	Sycamore.....	350 feet northerly.....	4	R	12 ft. w. of e. line.
Burton alley.....	Ellicott.....	Boston alley.....	4	H	11 ft. s. of n. line.
Burton alley.....	Ralph alley.....	Michigan.....	4	H	16 ft. n. of s. line.
Camp.....	Genesee.....	Sycamore.....	6	R	30 ft. w. of e. line.
Carlton.....	Main.....	Mulberry.....	6	H	23 ft. s. of n. line.
Carlton.....	Mulberry.....	Lemon.....	6	H	24 ft. s. of n. line.
Carlton.....	Lemon.....	Genesee.....	6	H	23 ft. s. of n. line.
Carroll.....	Washington.....	200 feet west of Chicago.....	4	R	33 ft. n. of s. line.
Carroll.....	200 feet west of Chicago.....	160 feet west of Chicago.....	14	R	33 ft. n. of s. line.
Carroll.....	Chicago.....	Louisiana.....	6	R	18 ft. s. of n. line.
Carroll.....	Louisiana.....	Alabama.....	4	R	18 ft. s. of n. line.
Carroll.....	Heacock.....	400 ft. e. of Van Rensselaer.....	4	R	21 ft. s. of n. line.
Cayuga.....	Jefferson.....	660 feet easterly.....	6	H	32 ft. n. of s. line.
Cedar.....	Swan.....	Broadway.....	6	R	30 ft. w. of e. line.
Central avenue.....	William.....	975 feet northerly.....	6	R	20 ft. w. of e. line.
Center.....	Seneca.....	Swan.....	4	R	17 ft. w. of e. line.
Cherry.....	Michigan.....	Virginia.....	20	R	24 ft. n. of s. line.
Chester.....	Glenwood avenue.....	300 feet northerly.....	6	H	30 ft. w. of e. line.
Chicago.....	Seneca.....	100 feet northerly.....	14	R	.....
Chicago.....	Seneca.....	Carroll.....	4	R	28 ft. e. of w. line.
Chicago.....	Carroll.....	Exchange.....	6	R	.....
Chicago.....	Exchange.....	Ohio.....	16	R	41 ft. e. of w. line.
Chippewa.....	Main.....	Ellicott.....	6	H	26 ft. n. of s. line.
Clifford.....	Smith.....	Selkirk.....	6	R	25 ft. n. of s. line.

Clinton.....	Main.....	Madison.....	36	R	25 ft. s. of n. line.
Clinton.....	Washington.....	Oak.....	6	H	43 ft. s. of n. line.
Clinton.....	Oak.....	Union.....	6	R	42 ft. s. of n. line.
Clinton.....	Union.....	Emslie.....	10	R	24 ft. s. of n. line.
Clinton.....	Emslie.....	Babcock.....	6	R	24 ft. n. of s. line.
Clinton.....	Babcock.....	Williamsville Road.....	16	R	22 ft. n. of s. line.
Colt.....	William.....	Lovejoy.....	6	R	32 ft. e. of w. line.
Columbia.....	Perry.....	Elk.....	6	R	14 ft. w. of e. line.
Columbia.....	Ohio.....	Buffalo River.....	16	R	.....
Cypress.....	Michigan.....	Pine.....	6	R	26 ft. s. of n. line.
Davis.....	Genesee.....	Jefferson.....	4	R	{ 26 ft. w. of e. line. 20 ft. n. of s. line.
Depot.....	William.....	North line of lot 58.....	6	R	28 ft. w. of e. line.
Detroit.....	Lovejoy.....	Broadway.....	6	R	18 ft. e. of w. line.
Dodge.....	Main.....	Masten.....	6	H	21 ft. n. of s. line.
Dupont.....	Utica.....	Glenwood avenue.....	6	H	32 ft. w. of e. line.
Eagle.....	Washington.....	Emslie.....	6	R	40 ft. n. of s. line.
Eagle.....	Bond.....	Smith.....	6	R	24 ft. s. of n. line.
Eagle.....	Michigan.....	Main.....	10	R	.....
Eagle.....	Smith.....	Raze.....	6	R	24 ft. s. of n. line.
East Bennett.....	Clinton.....	450 feet northerly.....	2	R	24 ft. w. of e. line.
East Bennett.....	William.....	Clinton.....	4	R	24 ft. w. of e. line.
East Market.....	Scott.....	Perry.....	4	R	.....
East Market.....	Perry.....	Fulton.....	6	R	19 ft. w. of e. line.
Eaton.....	Michigan.....	532 feet easterly.....	6	H	38 ft. n. of s. line.
Elk.....	Ohio.....	Mississippi.....	4	R	.....
Elk.....	Columbia.....	Michigan.....	6	R	38 ft. s. of n. line.
Elk.....	Michigan.....	Babcock.....	10	R	40 ft. s. of n. line.
Elk.....	Babcock.....	500 feet easterly.....	6	R	39 ft. s. of n. line.
Ellicott.....	South Division.....	Eagle.....	4	R	39 ft. w. of e. line.
Ellicott.....	Eagle.....	Clinton.....	4	H	40 ft. w. of e. line.
Ellicott.....	Seneca.....	Swan.....	4	R	39 ft. w. of e. line.
Ellicott.....	Broadway.....	Genesee.....	4	R	24 ft. e. of w. line.
Ellicott.....	Chippewa.....	550 northerly.....	4	H	15 ft. w. of e. line.
Ellicott.....	550 feet north of Chippewa.....	Tupper.....	10	H	15 ft. w. of e. line.
Ellicott.....	Tupper.....	600 feet southerly.....	4	R	2 ft. w. of e. line.

Schedule of Water Pipe Laid in the City, giving Location, Size of Pipe, and on What System.

Street.	From	To	Size of Pipe. Inches.	System	Location of Pipe.
Ellicott	Tupper	Goodell.....	10	H	14 ft. w. of e. line.
Ellicott ..	Goodell	Goodrich.....	6	H	27 ft. e. of w. line.
Ellicott ..	Rest	Dodge.....	6	H	21 ft. e. of w. line.
Ellicott ..	Clinton	Broadway.....	16	R	.....
Ellicott ..	Seneca	Clinton.....	10	R	.....
Ellicott ..	Broadway	Genesee.....	10	R	.....
Elm	North Division	Broadway	4	R	41 ft. w. of e. line.
Elm	Broadway	Sycamore.....	6	R	26 ft. w. of e. line.
Elm	Sycamore.....	Genesee.....	4	R	40 ft. e. of w. line.
Elm	Genesee.....	Tupper.....	6	R	21 ft. e. of w. line.
Elm	Tupper	High.....	6	H	40 ft. w. of e. line.
Elm	North	Best.....	6	H	30 ft. e. of w. line.
Elm	Swan	Clinton.....	10	R	.....
Emslie.....	Seneca	Broadway.....	6	R	31 ft. e. of w. line.
Euclid Place..	Elk	Prenatt.....	4	R	35 ft. e. of w. line.
Exchange.....	Main	Jefferson.....	20	R	23 ft. n. of s. line.
Exchange.....	Washington	Michigan.....	6	R	32 ft. n. of s. line.
Exchange.....	Jefferson	Heacock.....	12	R	32 ft. n. of s. line.
Exchange.....	Jefferson	Heacock.....	4	R	22 ft. s. of n. line.
Exchange.....	Main	Washington	12	H	52 ft. n. of s. line.
Exchange.....	Heacock	Smith.....	12	R	24 ft. s. of n. line.
Exchange.....	Smith.....	Selkirk	6	R	24 ft. n. of s. line.
Ferry.....	Main	600 feet east of Jefferson...	4	H	40 ft. s. of n. line.
Ferry.....	Main	Jefferson.....	12	H	39 ft. s. of n. line.
Fillmore avenue	Seneca	Peckham.....	16	R	18 ft. e. of w. line.
Fillmore avenue...	Genesee.....	Sycamore.....	16	R	84 ft. w. of e. line.

Fillmore avenue	"C"	200 feet southerly	6	R	19 ft. w. of e. line.
Fitzgerald	Elk	Mackinaw	6	R	22 ft. w. of e. line.
Folsom	Michigan	Chicago	6	R	25 ft. s. of n. line.
Folsom	Chicago	South Cedar	4	R	14 ft. n. of s. line.
Folsom	South Cedar	Jefferson	6	R	14 ft. n. of s. line.
Fox	Genesee	Sycamore	6	R	40 ft. e. of w. line.
Fox	Genesee	North	6	R	28 ft. w. of e. line.
Fox	Broadway	Sycamore	6	R	39 ft. e. of w. line.
Fulton	Michigan	Louisiana	6	R	36 ft. s. of n. line.
Fulton	Hamburgh	L. S. & M. S. R. R.	6	R	24 ft. n. of s. line.
Fulton	Van Rensselaer	Erie Railway	6	R	27 ft. n. of s. line.
Fulton	Louisiana	Hamburgh	6	R	24 ft. n. of s. line.
Ganson	South Michigan	320 feet northerly	16	R	7 ft. w. of e. line.
Ganson	South Michigan	1,760 feet southerly	16	R	10 ft. w. of e. line.
Ganson	320 north of S. Michigan	640 feet northerly	10	R	7 ft. w. of e. line.
Genesee	Main	Oak	6	H	61 ft. s. of n. line.
Genesee	Oak	Jefferson	6	R	39 ft. s. of n. line.
Genesee	Jefferson	Best	10	R	26 ft. n. of s. line.
Genesee	Michigan	Oak	10	R	.....
George	Mortimer	Jefferson	4	R	12 ft. n. of s. line.
German alley	Sycamore	Genesee	4	R	15 ft. e. of w. line.
Glenwood avenue	Main	Purdy	4	H	.....
Goodell	Main	Michigan	12	H	40 ft. s. of n. line.
Goodell	Michigan	Cherry	10	R	26 ft. n. of s. line.
Goodell alley	Tupper	Goodell	4	H	7 ft. e. of w. line.
Goodrich	Main	Michigan	6	H	40 ft. n. of s. line.
Granger	Chicago	Ohio Basin Slip	4	R	24 ft. s. of n. line.
Grape	Cherry	Virginia	6	R	38 ft. w. of e. line.
Grape	High	Best	6	H	39 ft. w. of e. line.
Grape	Virginia	Carlton	6	R	25 ft. w. of e. line.
Grape	Carlton	High	6	H	44 ft. e. of w. line.
Green	Michigan	Beak	4	K	30 ft. n. of s. line.
Grey	Broadway	Genesee	6	R	28 ft. w. of e. line.
Hamburgh	Elk	Fulton	6	R	23 ft. w. of e. line.
Hamburgh	Exchange	Elk	16	R	25 ft. w. of e. line.
Hamburgh	Elk	South	10	R	23 ft. w. of e. line.

SEVENTEENTH ANNUAL REPORT OF

Schedule of Water Pipe Laid in the City, giving Location, Size of Pipe, and on What System.

Street.	From	To	Size of Pipe. Inches.	Material.	Location of Pipe.
Hayward.....	Elk.....	Fulton.....	6	R	23 ft. e. of w. line.
Hayward.....	Perry.....	250 feet northerly.....	6	R	18 ft. w. of e. line.
Hayward.....	Fulton.....	150 feet northerly.....	6	R	48 ft. w. of e. line.
Heacock.....	Seneca.....	Scott.....	4	R	20 ft. e. of w. line.
Heacock.....	Exchange.....	Perry.....	12	R	18 ft. w. of e. line.
Herman.....	Broadway.....	North.....	6	R	30 ft. w. of e. line.
Hickory.....	Cherry.....	Genesee.....	10	R	23 ft. e. of w. line.
Hickory.....	Genesee.....	Eagle.....	6	R	40 ft. w. of e. line.
High.....	Main.....	Jefferson.....	10	H	28 ft. s. of n. line.
High.....	Jefferson.....	Grey.....	6	H	37 ft. n. of s. line.
Hinckly.....	Spring.....	Mortimer.....	4	R	34 ft. s. of n. line.
Hollister.....	Spring.....	Mortimer.....	6	R	16 ft. s. of n. line.
Howard.....	Jefferson.....	Madison.....	6	R	20 ft. s. of n. line.
Howard.....	Monroe.....	Adams.....	6	R	15 ft. n. of s. line.
Howard.....	Madison.....	Monroe.....	4	R	16 ft. n. of s. line.
Howard.....	Adams.....	Sherman street.....	4	R	37 ft. s. of n. line.
Howard.....	Madison.....	Metcalf.....	36	R	.....
Howard.....	Sherman.....	Shumway.....	6	R	39 ft. s. of n. line.
Howard.....	Smith.....	Raze.....	6	R	16 ft. n. of s. line.
Howard.....	Shumway.....	Smith.....	4	R	36 ft. s. of n. line.
Howard.....	Metcalf.....	Babcock.....	12	R	39 ft. s. of n. line.
Howard.....	Metcalf.....	425 feet westerly.....	4	R	33 ft. s. of n. line.
Huron.....	Washington.....	Oak.....	4	R	.....
Illinois.....	Elk.....	Perry.....	6	R	.....
Indiana.....	Perry.....	Mary.....	2	R	.....
James.....	Lord.....	Montgomery.....	6	R	14 ft. s. of n. line.

Jefferson	Exchange.....	William.....	20	R	21 ft. e. of w. line.
Jefferson.....	William.....	100 feet north of George..	6	R	38 ft. w. of e. line.
Jefferson.....	100 feet north of George..	Sycamore.	4	R	.....
Jefferson.....	100 feet north of George..	400 feet north of George..	2	R	.....
Jefferson.....	Sycamore.....	Davis.....	4	R	.....
Jefferson.....	Davis.....	Brown.....	6	R	35 ft. w. of e. line.
Jefferson.....	Brown.....	Virginia.....	20	R	30 ft. e. of w. line.
Jefferson.....	Virginia.....	High	6	H	30 ft. e. of w. line.
Jefferson.....	High	Best.....	10	H	28 ft. w. of e. line.
Jefferson.....	Best	Ferry.....	16	H	43 ft. w. of e. line.
Jefferson.....	Ferry.....	Puffer.....	16	H	37 ft. w. of e. line.
Johnson.....	Broadway.....	North.....	6	R	45 ft. w. of e. line.
Kane.....	Sycamore.....	425 feet northerly.....	4	R	{ 8 ft. e. of w. line.
Kane.....	Genesee.	425 feet southerly.....	6	R	8 ft. w. of e. line.
Katharine.....	Elk.....	Erie Railway.	6	R	19 ft. e. of w. line.
Krettner.....	Howard.....	150 feet north of Lovejoy..	6	R	14 ft. e. of w. line.
Krettner.....	Broadway	Lovejoy.....	6	R	33 ft. w. of e. line.
Lafayette.....	Washington.....	Broadway.....	6	R	15 ft. e. of w. line.
Lemon.....	Cherry.....	North.....	6	H	.....
Lester.....	Seneca.....	500 feet northerly.....	6	R	23 ft. e. of w. line.
Lewis.....	William.....	Howard.....	6	R	.....
Lewis	Clinton.....	300 feet northerly.....	6	R	21 ft. e. of w. line.
Laurel.....	Michigan....	Masten....	6	H	32 ft. w. of e. line.
Locust... ..	Cherry.....	North.....	6	H	27 ft. s. of n. line.
Lord.....	Clinton	Eagle.....	6	R	28 ft. e. of w. line.
Lord.	South Division	270 feet southerly.....	6	R	.....
Louisiana	Seneca.....	Hamburgh canal.....	6	R	32 ft. w. of e. line.
Louisiana.....	Exchange.....	Ohio	10	R	28 ft. w. of e. line.
Lovejoy.....	Emslie.....	Sherman	6	R	27 ft. w. of e. line.
Lovejoy.....	Williamsville Road.....	City line.....	10	R	25 ft. s. of n. line.
Lutheran alley.....	Broadway	William	4	R	40 ft. s. of n. line.
Mackinaw	Louisiana	Hamburgh	6	R	11 ft. e. of w. line.
Madison	Eagle.....	Brown	6	R	25 ft. n. of s. line.
Madison	Clinton	Howard.....	6	R	21 ft. w. of e. line.
Main	Ohio	Prime	36	R	31 ft. e. of w. line.
			6	R	50 ft. w. of e. line.

Schedule of Water Pipe Laid in the City, giving Location, Size of Pipe, and on What System.

Street.	From	To	Size of Pipe. Inches.	System	Location of Pipe.
Main	Prime	Exchange	10	R	49 ft. w. of e. line.
Main	Exchange	North Division	12	H	49 ft. w. of e. line.
Main	North Division	Goodell	12	H	48 ft. w. of e. line.
Main	Goodell	Allen	16	H	47 ft. e. of w. line.
Main	Allen	Ferry	20	H	33 ft. w. of e. line.
Main	Ferry	South line of Poorhouse lot.	16	H	16 ft. w. of e. line.
Maple	Cherry	Virginia	6	R	26 ft. w. of e. line.
Maple	Virginia	North	6	H	28 ft. e. of w. line.
Mark	William	Gay	4	R	24 ft. w. of e. line.
Marvin	Elk	Perry	6	R	22 ft. w. of e. line.
Masten	Utica	Glenwood avenue	6	H	41 ft. w. of e. line.
Masten	Ferry	1100 feet northerly	6	H	44 ft. w. of e. line.
Masten	Dodge	South Hampton	6	H	42 ft. w. of e. line.
Masten	North Hampton	550 feet northerly	6	H	22 ft. e. of w. line.
Mathews alley	Jefferson	Mortimer	4	R	12 ft. n. of s. line.
Maurice	Seneca	500 feet southerly	6	R	20 ft. e. of w. line.
Metcalfe	Howard	William	36	R	18 ft. e. of w. line.
Metcalfe	Howard	William	6	R	33 ft. w. of e. line.
Metcalfe	Howard	Lyman	6	R	19 ft. e. of w. line.
Miami	Louisiana	Hamburgh	6	R	18 ft. s. of n. line.
Miami	Ohio	Chicago	16	R	.....
Michigan	Ohio	Genesee	10	R	28 ft. w. of e. line.
Michigan	Genesee	Goodell	12	R	24 ft. e. of w. line.
Michigan	120 feet north of Goodell	High	6	H	27 ft. e. of w. line.
Michigan	High	Best	10	H	32 ft. e. of w. line.
Michigan	Best	Ferry	6	H	42 ft. w. of e. line.

Milnor.....	Broadway.....	William.....	6	R	30 ft. w. of e. line.
Minton.....	Smith.....	Selkirk.....	6	R	32 ft. n. of s. line.
Mississippi.....	Ohio.....	Elk.....	4	R	19 ft. w. of e. line.
Mississippi.....	Elk.....	Mary.....	2	R	.....
Mississippi.....	Mary.....	150 feet north of Perry.....	4	R	.....
Mohawk.....	Washington.....	Ellicott.....	6	R	31 ft. n. of s. line.
Monroe.....	Clinton.....	Brown.....	6	R	34 ft. w. of e. line.
Monroe.....	Clinton.....	Eagle.....	6	R	32 ft. w. of e. line.
Mortimer.....	Cherry.....	Broadway.....	6	R	32 ft. w. of e. line.
Mortimer.....	William.....	495 feet north of Peckham.....	6	R	32 ft. w. of e. line.
Mulberry.....	Goodell.....	Carlton.....	6	H	39 ft. w. of e. line.
Mulberry.....	High.....	North.....	6	H	27 ft. e. of w. line.
Mulberry.....	Carlton.....	High.....	6	H	43 ft. w. of e. line.
Nichols alley.....	Seneca.....	200 feet northerly.....	4	R	7 ft. e. of w. line.
North.....	Main.....	Michigan.....	6	H	35 ft. s. of n. line.
North.....	Grape.....	Orange.....	6	H	39 ft. s. of n. line.
Northampton.....	Jefferson.....	Masten.....	6	H	43 ft. s. of n. line.
North Division.....	Ellicott.....	Cedar.....	4	R	27 ft. n. of s. line.
North Division.....	Cedar.....	N. Y. C. & H. R. R. R.....	6	R	24 ft. n. of s. line.
North Division.....	Michigan.....	Main.....	16	R	35 ft. s. of n. line.
North Ogden.....	Lovejoy.....	William.....	10	R	35 ft. e. of w. line.
Oak.....	South Division.....	Broadway.....	4	R	40 ft. w. of e. line.
Oak.....	Broadway.....	Sycamore.....	6	R	23 ft. e. of w. line.
Oak.....	Sycamore.....	Tupper.....	4	R	16 ft. e. of w. line.
Oak.....	Genesee.....	Tupper.....	12	R	13 ft. w. of e. line.
Oak.....	Tupper.....	Goodell.....	6	H	13 ft. w. of e. line.
Oak.....	Goodell.....	Virginia.....	4	H	25 ft. e. of w. line.
Oak.....	Virginia.....	High.....	6	H	29 ft. e. of w. line.
Oak.....	North.....	Best.....	6	H	15 ft. w. of e. line.
Oak.....	Swan.....	Broadway.....	10	R	26 ft. e. of w. line.
Ohio.....	Main.....	Elk.....	6	R	.....
Ohio.....	Mississippi.....	800 feet south of Chicago.....	6	R	40 ft. n. of s. line.
Ohio.....	Miami.....	Columbia.....	16	R	.....
Oneida.....	Emslie.....	Smith.....	6	R	24 ft. n. of s. line.
Orange.....	Cherry.....	High.....	6	H	25 ft. e. of w. line.
Orange.....	High.....	North.....	6	H	23 ft. e. of w. line.

Schedule of Water Pipe Laid in the City, giving Location, Size of Pipe, and on What System.

Street.	From	To	Size of Pipe, inches.	Remarks	Location of Pipe.
Orlando	Elk	350 feet southerly	4	R	18 ft. e. of w. line.
Peach	Cherry	Carlton	6	R	39 ft. w. of e. line.
Peach	Carlton	High	6	H	27 ft. e. of w. line.
Peach	North	Best	6	H	34 ft. w. of e. line.
Peach	High	North	6	H	40 ft. e. of w. line.
Peckham	Jefferson	Fillmore avenue	6	R	33 ft. n. of s. line.
Perry	Main	Mississippi	6	R	45 ft. n. of s. line.
Perry	Columbia	Michigan	6	R	12 ft. s. of n. curb.
Perry	Marvin	Heacock	6	R	29 ft. n. of s. line.
Perry	Heacock	Erle Railway	12	R	23 ft. s. of n. line.
Pine	Eagle	William	6	R	20 ft. w. of e. line.
Pine	William	Sycamore	4	R	26 ft. w. of e. line.
Porter	Heacock	275 feet easterly	6	R	18 ft. e. of w. line.
Potter	William	Broadway	6	R	37 ft. w. of e. line.
Pratt	Clinton	William	4	R	25 ft. e. of w. line.
Pratt	Eagle	Clinton	6	R	27 ft. e. of w. line.
Pratt	William	Genesee	6	R	38 ft. s. of n. line.
Puffer	Main	Jefferson	6	H	16 ft. e. of w. line.
Ralph alley	Burton alley	Virginia	4	H	14 ft. e. of w. line.
Randall	William	200 feet southerly	1 1/2	R	20 ft. s. of n. line.
Red Jacket	Perry	Fulton	6	R	32 ft. w. of e. line.
Rey	Mortimer	375 feet easterly	4	R	17 ft. s. of n. line.
Rich	Genesee	Best	6	H	42 ft. e. of w. line.
Riley	Masten	450 feet west of Michigan	6	H	43 ft. e. of w. line.
Rose	Virginia	Carlton	6	R	
Rose	Carlton	High	6	H	

Scott	.....	Main	.....	Illinois	.....	4	R	34 ft. n. of s. line.
Scott	.....	Michigan	.....	Chicago	.....	12	R	.....
Scott	.....	Michigan	.....	520 feet easterly	.....	4	R	.....
Scott	.....	Chicago	.....	520 feet westerly	.....	6	R	.....
Selkirk	.....	Seneca	.....	450 feet south of Exchange	.....	4	R	28 ft. e. of w. line.
Selkirk	.....	Elk	.....	Perry	.....	6	R	18 ft. e. of w. line.
Selkirk	.....	Clifford	.....	400 feet northerly	.....	6	R	17 ft. w. of e. line.
Seneca	.....	Main	.....	Washington	.....	6	H	44 ft. n. of s. line.
Seneca	.....	Main	.....	Selkirk	.....	6	R	36 ft. s. of n. line.
Seneca	.....	Michigan	.....	Main	.....	12	R	29 ft. n. of s. line.
Seneca	.....	Fillmore avenue	.....	Dole	.....	10	R	16 ft. n. of s. line.
Seymour	.....	Emslie	.....	Hagerman	.....	4	R	22 ft. n. of s. line.
Seymour	.....	Hagerman	.....	320 feet westerly	.....	4	R	32 ft. s. of n. line.
Sherman	.....	Howard	.....	North	.....	6	R	20 ft. e. of w. line.
Shumway	.....	William	.....	Peckham	.....	6	R	33 ft. w. of e. line.
Shumway	.....	Howard	.....	William	.....	6	R	18 ft. e. of w. line.
Sidway	.....	Elk	.....	Mackinaw	.....	6	R	16 ft. w. of e. line.
Smith	.....	Abbott Road	.....	Elk	.....	10	R	20 ft. w. of e. line.
Smith	.....	Elk	.....	Seneca	.....	16	R	18 ft. e. of w. line.
Smith	.....	Howard	.....	Peckham	.....	6	R	17 ft. e. of w. line.
Smith	.....	Lovejoy	.....	Broadway	.....	6	R	23 ft. w. of e. line.
South	.....	Louisiana	.....	Ohio	.....	6	R	22 ft. s. of n. line.
South	.....	Louisiana	.....	Hamburg	.....	6	R	.....
Southampton	.....	Michigan	.....	Masten	.....	6	H	40 ft. s. of n. line.
South Cedar	.....	Seneca	.....	Swan	.....	4	R	32 ft. e. of w. line.
South Division	.....	Main	.....	Michigan	.....	6	R	24 ft. n. of s. line.
South Division	.....	Michigan	.....	Cedar	.....	4	R	35 ft. s. of n. line.
South Division	.....	Cedar	.....	N. Y. C. R. R.	.....	6	R	24 ft. n. of s. line.
South Division	.....	Emslie	.....	N. Y. C. R. R.	.....	6	R	24 ft. n. of s. line.
South Division	.....	Michigan	.....	Main	.....	10	R	.....
South Division	.....	Chestnut	.....	Pine	.....	6	R	36 ft. n. of s. line.
South Division	.....	Emslie	.....	Lord	.....	6	R	34 ft. s. of n. line.
Spring	.....	Genesee	.....	Broadway	.....	4	R	30 ft. e. of w. line.
Spring	.....	Broadway	.....	William	.....	8	R	39 ft. w. of e. line.
Spring	.....	William	.....	Clinton	.....	6	R	40 ft. e. of w. line.
Spring	.....	Clinton	.....	Eagle	.....	4	R	25 ft. w. of e. line.

Schedule of Water Pipe Laid in the City, giving Location, Size of Pipe, and on What System.

Street.	From	To	Size of Pipe. Inches.	System	Location of Pipe.
Spruce.....	Cherry.....	Broadway.....	6	R	35 ft. w. of e. line.
Stanton.....	Howard.....	Peckham.....	6	R	31 ft. w. of e. line.
Stanton.....	Lovejoy.....	Broadway.....	6	R	18 ft. w. of e. line.
Stanton.....	Peckham.....	Lovejoy.....	6	R	34 ft. e. of w. line.
St. Paul.....	Main.....	300 feet easterly.....	4	H	18 ft. s. of n. line.
St. Paul.....	Oak.....	624 feet westerly.....	6	H	17 ft. s. of n. line.
Strauss.....	Genesee.....	Sycamore.....	6	R	20 ft. w. of e. line.
Strauss.....	Sycamore.....	Broadway.....	6	R	22 ft. e. of w. line.
Superior.....	Spring.....	Jefferson.....	6	R	22 ft. n. of s. line.
Swan.....	Main.....	Ellicott.....	10	R	27 ft. s. of n. line.
Swan.....	Ellicott.....	Cedar.....	10	R	26 ft. n. of s. line.
Swan.....	Cedar.....	Seneca.....	6	R	39 ft. s. of n. line.
Sycamore.....	Oak.....	Spring.....	10	R	42 ft. n. of s. line.
Sycamore.....	Spring.....	Jefferson.....	4	R	{ 4 ft. s. of n. line. 2 ft. n. of s. line.
Sycamore.....	Jefferson.....	Beckwith.....	6	R	.....
Sycamore.....	Adams.....	Johnson.....	6	R	41 ft. n. of s. line.
Sycamore.....	Johnson.....	Sherman.....	6	R	42 ft. n. of s. line.
Tupper.....	Main.....	Washington.....	12	H	24 ft. s. of n. line.
Tupper.....	Main.....	Michigan.....	20	R	16 ft. n. of s. line.
Tupper.....	Washington.....	Michigan.....	6	R	17 ft. n. of s. line.
Tousey.....	Sycamore.....	Champlin.....	4	R	25 ft. w. of e. line.
Union.....	Eagle.....	Clinton.....	4	R	17 ft. e. of w. line.
Union.....	Clinton.....	William.....	6	R	17 ft. w. of e. line.
Urban alley.....	North.....	High.....	4	H	11 ft. e. of w. line.
Utica.....	Main.....	Jefferson.....	6	H	26 ft. n. of s. line.

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Schedule of Water Pipe Laid in the City, giving Location, Size of Pipe, and on What System.

WEST SIDE.

Street.	From	To	Size of Pipe. Inches.	System	Location of Pipe.
Albany.....	Niagara.....	West avenue.....	6	R	40 ft. n. of s. line.
Allen....	Main.....	Wadsworth.....	24	H	50 ft. n. of s. line.
Amherst.....	Niagara.....	Military Road.....	6	R	50 ft. s. of n. line.
Amherst.....	Military Road.....	N. Y. C. R. R.....	6	R	22 ft. s. of n. line.
Anderson Place.....	Richmond avenue.....	Ashland avenue.....	6	H	38 ft. s. of n. line.
Ashland avenue.....	Bryant.....	830 feet southerly.....	6	H	40 ft. w. of e. line.
Ashland avenue.....	Ferry.....	370 feet southerly.....	6	H	21 ft. e. of w. line.
Ashland avenue.....	Ferry.....	Auburn avenue.....	6	H	27 ft. e. of w. line.
Auburn avenue.....	West avenue.....	Gelston ..	4	R	27 ft. s. of n. line.
Balcom.....	Main.....	Michigan.....	6	H	41 ft. n. of s. line.
Balcom.....	Michigan.....	525 feet westerly.....	6	H	24 ft. s. of n. line.
Barton.....	Breckenridge.....	120 feet southerly.....	2	R	5 ft. w. of e. line.
Baynes.....	Ferry.....	237 feet north Auburn ave.....	6	H	22 ft. e. of w. line.
Bean alley.....	Huron.....	170 feet southerly.....	4	R	5 ft. e. of w. line.
Bird avenue.....	West avenue.....	Grant.....	6	R	24 ft. s. of n. line.
Bird avenue.....	Niagara.....	West.....	6	R	23 ft. n. of s. line.
Bouck avenue.....	Niagara.....	Dewitt.....	6	R	43 ft. s. of n. line.
Brayton.....	Vermont.....	Rhode Island.....	6	H	32 ft. w. of e. line.
Breckenridge.....	Niagara.....	West avenue.....	16	R	25 ft. s. of n. line.
Breckenridge.....	West avenue.....	Dewitt.....	4	R	29 ft. s. of n. line.
Breckenridge.....	Dewitt.....	Barton.....	6	R	25 ft. s. of n. line.
Bryant, S. S.....	Linwood avenue.....	Howard avenue.....	6	H	12 ft. n. of s. line.
Bryant, N. S.....	Elmwood avenue.....	250 feet west of Ashland ave.....	6	H	14 ft. s. of n. line.
Bryant, N. S.....	Richmond avenue.....	210 feet easterly.....	6	H	14 ft. s. of n. line.
Butler.....	Richmond avenue.....	Delaware avenue.....	6	H	39 ft. s. of n. line.
Canal.....	Erie.....	Commercial.....	6	R	17 ft. s. of n. line.
Carolina.....	Erie canal.....	Sixth.....	4	R	39 ft. s. of n. line.

Carolina.....	Sixth	Niagara.....	6	R	35 ft. s. of n. line.
Carolina.....	Prospect avenue.....	Tupper	6	R	.....
Carolina.....	Niagara.....	Prospect avenue	6	R	35 ft. s. of n. line.
Cary.....	Lot line bet. lots 171 & 172.	280 feet west of Morgan...	4	R	27 ft. n. of s. line.
Chapin Parkway.....	Soldiers Place.....	Delavan avenue.....	6	R	11 ft. e. of w. line.
Chenango	Utica	Ferry	6	H	36 ft. e. of w. line.
Chippewa	Franklin	Georgia.....	6	R	31 ft. n. of s. line.
Chippewa	Main	Franklin	6	H	31 ft. n. of s. line.
Clifton Place.....	Cottage	Norris Place.....	4	H	16 ft. w. of e. line.
Clinton avenue.....	West avenue.....	Herkimer	6	R	23 ft. s. of n. line.
College	Cottage	North.....	6	H	31 ft. e. of w. line.
Commercial.....	Terrace.....	Water.....	6	R	.....
Connecticut.....	Niagara.....	Prospect avenue.....	20	H	27 ft. n. of s. line.
Connecticut.....	Prospect avenue.....	Fargo avenue.....	4	H	15 ft. s. of n. line.
Connecticut.....	Fargo avenue.....	West avenue.....	6	H	27 ft. s. of n. line.
Connecticut.. ..	West avenue.....	Plymouth avenue	16	H	10 ft. n. of s. line.
Connecticut.....	Plymouth avenue.....	Richmond avenue.....	6	H	38 ft. s. of n. line.
Cottage	Mariner	Hudson	10	H	30 ft. n. of s. line.
Court.....	Main	Terrace.....	36	R	.....
Court.....	Main	Pearl	6	H	52 ft. n. of s. line.
Court.....	Morgan.....	Terrace.....	6	R	.....
Court.....	Wilkeson	Georgia	4	R	43 ft. n. of s. line.
Danforth.....	Forest avenue.	Bradley.....	6	R	38 ft. e. of w. line.
Dart.....	Forest avenue.....	Bradley.....	4	R	25 ft. e. of w. line.
Dayton	Main	Prime.....	4	R	.....
Dearborn.....	Amherst	350 feet northerly.....	6	R	25 ft. e. of w. line.
Delavan avenue	Chapin Parkway.....	300 feet easterly.....	4	R	20 ft. s. of n. line.
Delavan avenue.....	West avenue.....	Congress	6	R	12 ft. s. of n. line.
Delaware avenue.....	Church.....	Niagara.....	4	R	38 ft. e. of w. line.
Delaware avenue.....	Niagara	Chippewa	6	R	58 ft. e. of w. line.
Delaware avenue.....	Chippewa	North.....	6	H	41 ft. w. of e. line.
Delaware avenue.....	North.....	585 feet north of Ferry.....	12	H	36 ft. w. of e. line.
Delaware avenue.....	585 feet north of Ferry.....	775 feet north of Ferry.....	10	H	14 ft. w. of e. line.
Delaware avenue.....	775 feet north of Ferry.....	Chapin Place	6	H	16 ft. w. of e. line.
Delaware Place.. .	Delaware avenue.....	Virginia... .	4	H	19 ft. n. of s. line.
Dewitt.....	Breckenridge.....	400 feet northerly.....	4	R	43 ft. w. of e. line.

Schedule of Water Pipe Laid in the City, giving Location, Size of Pipe, and on What System.

Street	From	To	Size of Pipe, Inches.	System	Location of Pipe.
Dewitt...	Forest avenue.	465 feet northerly.	4	R	19 ft. w. of e. line.
Eagle.	Main ..	Pearl ..	6	H	25 ft. n. of s. line.
Eagle.	Franklin ..	Morgan. .	4	R	26 ft. s. of n. line.
Eagle.	Main ..	Pearl ..	10	R	.....
Eagle.	Pearl ..	Franklin ..	6	H	25 ft. n. of s. line.
East.	Parish ..	Farmer ..	16	R	39 ft. e. of w. line.
Edward .	Virginia ..	220 ft. e. of Delaware ave..	4	H	38 ft. n. of s. line.
Efner...	Georgia ..	Carolina. .	6	R	19 ft. e. of w. line.
Efner .	Carolina. .	Maryland ..	4	R	32 ft. w. of e. line.
Efner .	Maryland.	Hudson ..	6	R	33 ft. w. of e. line.
Eighteenth ..	Connecticut ..	Vermont ..	6	H	31 ft. w. of e. line.
Eighteenth ..	Rhode Island ..	Massachusetts ..	6	H	32 ft. e. of w. line.
Elmwood avenue .	Hodge avenue ..	200 ft. northerly.	6	H	.....
Elmwood avenue.	Ferry ..	Auburn avenue.	6	H	30 ft. e. of w. line.
Erie.....	Main ..	Terrace ..	6	H	31 ft. n. of s. line.
Erie ..	Terrace ..	Water.....	6	R	38 ft. n. of s. line.
Erie ..	Water. .	Buffalo River.	4	R	.....
Erie ..	Main ..	Pearl ..	10	R	31 ft. n. of s. line.
Essex."	Massachusetts.	200 ft. southerly.	6	H	16 ft. w. of w. line.
Express ..	Pearl .	125 ft. westerly.	6	H	.....
Fargo avenue..	Connecticut.	270 ft. southerly	4	H	10 ft. e. of w. line.
Fargo avenue.	Connecticut.	Hampshire ..	6	H	38 ft. w. of e. line.
Fargo avenue .	Hampshire ..	Niagara.....	6	R	36 ft. w. of e. line.
Fargo avenue.	Hudson.....	Pennsylvania ..	6	R	40 ft. e. of w. line.
Fargo avenue .	Jersey ..	Forter avenue.	6	H	23 ft. w. of e. line.
Farmer ..	Niagara.....	Garnsey.....	6	R	20 ft. n. of s. line.

Ferry	Erie Canal.....	Niagara.....	4	R	.....
Ferry	Gelston	West avenue.....	6	R	41 ft. s. of n. line.
Ferry	West avenue.....	Richmond avenue.....	6	H	40 ft. s. of n. line.
Ferry	Main	Richmond avenue.....	12	H	55 ft. n. of s. line.
Fifteenth	York.....	Vermont	6	H	41 ft. e. of w. line.
Fifteenth	Vermont	Rhode Island.....	6	H	26 ft. e. of w. line.
Fifth	Court	Pennsylvania	6	R	34 ft. w. of e. line.
Fly.....	State.....	Maiden Lane.....	4	R	.....
Forest avenue.....	Erie Canal.....	Niagara.....	4	R	.....
Forest avenue.....	Niagara. . .	West avenue.....	16	R	42 ft. s. of n. line.
Forest avenue.....	West avenue	Lincoln Parkway.....	12	R	40 ft. s. of n. line.
Forest avenue.....	Richmond avenue. . .	Carmine Place.....	6	H	.....
Fourteenth	Pennsylvania.....	Porter avenue.....	24	H	.....
Fourteenth	Porter avenue.....	500 ft. north of York.....	6	H	25 ft. e. of w. line.
Fourteenth	Connecticut. . .	130 ft. southerly. . .	8	H	21 ft. e. of w. line.
Fourteenth	Connecticut.....	Rhode Island.....	6	H	24 ft. e. of w. line.
Fourteenth	Rhode Island	Hampshire	6	H	38 ft. w. of e. line.
Fourth.....	Genesee.....	430 ft. northerly.....	4	R	.....
Fourth.....	Carolina.....	300 ft. southerly.....	4	R	.....
Franklin	Terrace	Swan	4	H	24 ft. e of w. line.
Franklin	Swan	Eagle	6	H	.....
Franklin	Eagle.....	Chippewa	4	R	.....
Franklin	Chippewa	500 ft. northerly. . .	6	R	41 ft e. of w. line.
Franklin	500 ft. north of Chippewa .	Tupper	4	R	26 ft. w. of e. line.
Franklin	Tupper	North	6	H	38 ft. e. of w. line.
Fremont Place.....	Virginia ..	North	6	H	30 ft. e. of w. line.
Front avenue.....	Porter avenue.....	Vermont	20	R	.....
Front avenue.....	Rhode Island.....	216 ft. south of Connecticut.	6	H	30 ft. w. of e. line.
Front avenue.....	Stand Pipe.....	Niagara.	16	R	42 ft. w. of e. line.
Front avenue	Valve House.....	Hampshire.....	24	H	.....
Gelston	Ferry	250 ft. n. of Breckenridge..	4	R	36 ft. w. of e. line.
Genesee.....	Main	Pearl.....	4	H	.....
Genesee.....	Pearl	Niagara.....	4	R	35 ft. s. of n. line.
Genesee.....	Niagara.....	East line of C. R. R.....	6	R	58 ft. s. of n. line.
Georgia	Chippewa	Niagara	6	R	.....
Georgia	Niagara.....	Sixth	4	R	.....

Schedule of Water Pipe Laid in the City, giving Location, Size of Pipe, and on What System.

Street.	From	To	Size of Pipe. Inches.	System.	Location of Pipe.
Georgia	Sixth	Court	6	R	28 ft. n. of s. line.
Georgia	Court	C. R. R. Round House	3	R	22 ft. s. of n. line.
Grant	Ferry	Arnold	6	H	22 ft. w. of e. line.
Hamilton	East	50 ft. east of Thompson	6	R	30 ft. s. of n. line.
Hampshire	Prospect avenue	Plymouth avenue	6	H	38 ft. s. of n. line.
Hampshire	Front	Albany	24	H	.....
Hanover	Main	Prime	4	R	.....
Henry	Terrace	Erie Canal	6	R	24 ft. s. of n. line.
Herkimer	Albany	Ferry	24	H	49 ft. w. of e. line.
Hodge avenue	Delaware avenue	Ashland avenue	6	H	22 ft. n. of s. line.
Howard avenue	Bryant	Summer	6	H	44 ft. w. of e. line.
Hudson	Niagara	West avenue	10	R	24 ft. s. of n. line.
Hudson	West avenue	Cottage	10	H	42 ft. n. of s. line.
Hudson	Cottage	Wadsworth	6	H	42 ft. n. of s. line.
Hudson	Sixth	Erie Canal	4	R	.....
Huron	Franklin	Delaware avenue	4	R	.....
Huron	Delaware avenue	Prospect avenue	6	R	.....
Huron	Pearl	Niagara	12	R	.....
Irving Place	Allen	North	6	H	32 ft. e. of w. line.
Jackson	Genesee	Court Place	4	R	28 ft. w. of e. line.
Jersey	Prospect avenue	West avenue	6	H	.....
Jersey	West avenue	Porter avenue	16	R	.....
Jersey	Porter avenue	Richmond avenue	16	H	.....
Jersey	Fourteenth	200 ft. northerly	6	H	.....
John	Seneca	Pearl	4	H	10 ft. e. of w. line.
Johnson Place	Delaware avenue	Carolina	4	R	.....

Ketchum Place.....	Jersey	York.....	6	H	35 ft. w. of e. line.
Kremlin alley.. ..	Eagle	125 ft. southerly.....	4	H	7 ft. w. of e. line.
Lake.....	Commercial.	60 ft. easterly.....	4	R	.....
Lake View avenue...	Pennsylvania.....	Porter avenue.....	6	R	40 ft. e. of w. line.
Lincoln Parkway.....	Forest avenue.....	South line of Park.....	6	R	.....
Linwood avenue... ..	North.....	Ferry.....	6	H	.....
Linwood avenue.. ..	Ferry.....	Delavan avenue.....	6	H	48 ft. w. of e. line.
Lloyd.....	Main	South end of Bridge.....	4	R	26 ft. e. of w. line.
Lloyd.....	South end of Bridge.....	Prime.....	6	R	26 ft. e. of w. line.
Mariner.....	Virginia	North.....	6	H	30 ft. e. of w. line.
Maryland.....	Seventh.....	100 ft. west of Fourth	4	R	29 ft. n. of s. line.
Maryland.....	West avenue.....	Twelfth	6	R	41 ft. s. of n. line.
Maryland.....	Cottage	College	6	H	30 ft. s. of n. line.
Maryland.....	Niagara	Seventh	6	R	.....
Massachusetts.....	Front.....	Seventh.....	6	H	50 ft. n. of s. line.
Massachusetts	Seventh	Niagara.....	20	H	46 ft. s. of n. line.
Massachusetts.....	Niagara	Prospect avenue.....	6	H	41 ft. s. of n. line.
Massachusetts.....	Prospect avenue.....	Fargo avenue.....	6	H	40 ft. s. of n. line.
Massachusetts.....	Plymouth avenue.....	Fourteenth	6	H	38 ft. s. of n. line.
Massachusetts.....	Fargo avenue	Plymouth avenue.....	6	H	26 ft. n. of s. line.
Massachusetts.....	Fourteenth	Richmond avenue	6	H	26 ft. n. of s. line.
Mechanic.....	Terrace	350 ft. westerly	4	R	34 ft. n. of s. line.
Michigan.....	Balcom	300 ft. northerly.....	6	H	25 ft. w. of e. line.
Mohawk.....	Main	Niagara.....	6	R	36 ft. s. of n. line.
Mohawk.....	Niagara.....	Wilkeson.....	4	R	.....
Morgan.....	Chippewa	Mohawk	4	R	41 ft. w. of e. line.
Morgan.....	Niagara	Eagle.....	4	R	26 ft. e. of w. line.
Niagara.....	Main	250 ft. north of Connecticut	16	R	61 ft. e. of w. line.
Niagara	250 ft. north of Connecticut	Rhode Island.....	24	H	.....
Niagara.....	Connecticut.....	Massachusetts.....	20	H	.....
Niagara.....	Massachusetts	Front avenue.....	6	R	65 ft. e. of w. line.
Niagara.....	Front avenue	Breckenridge.....	16	R	20 ft. w. of e. line.
Niagara	Albany.....	Forest avenue. . .	4	R	19 ft. e. of w. line.
Niagara	Breckenridge.....	300 ft. northerly.....	4	R	19 ft. w. of e. line.
Niagara	Bouck avenue.....	250 ft. southerly.....	4	R	19 ft. w. of e. line.
Niagara.....	Bouck avenue.....	Forest avenue.....	4	R	19 ft. w. of e. line.

Schedule of Water Pipe Laid in the City, giving Location, Size of Pipe, and on What System.

Street.	From	To	Size of Pipe. Inches.	System.	Location of Pipe.
Niagara	Forest avenue.....	Parish	16	R	18 ft. w. of e. line.
Niagara.....	Amherst	Parish	6	R	63 ft. e. of w. line.
Niagara	Amherst	City Line.....	6	R	39 ft. w. of e. line.
Nineteenth	Rhode Island.....	Massachusetts.....	6	H	42 ft. w. of e. line.
Norris Place	Cottage	Wadsworth	4	H	.....
North.....	Main	Porter avenue.....	12	H	31 ft. n. of s. line.
North Pearl.....	Virginia.....	North.....	6	H	28 ft. e. of w. line.
Norton.....	Water.....	Peacock.....	6	R	.....
Orton Place.....	Hudson.....	Pennsylvania.....	6	H	18 ft. e. of w. line.
Parish	Niagara.....	East.....	16	R	.....
Park.....	Virginia.....	North.....	6	H	31 ft. e. of w. line.
Park Place.....	Delaware avenue.....	Johnson Place.....	4	R	.....
Peacock.....	Erie.....	Norton.....	6	R	.....
Pearl	Commercial	Terrace	4	R	.....
Pearl	Terrace.....	Court	6	H	40 ft. w. of e. line.
Pearl	Terrace	200 feet northerly.....	6	R	.....
Pearl	Court.....	Genesee	6	H	.....
Pearl	Genesee.....	Tupper.....	4	H	29 ft. e. of w. line.
Pearl	Virginia.....	250 ft. southerly.....	4	H	.....
Pearl	Terrace	Niagara	15	R	.....
Pearl	Niagara.....	Huron	12	R	.....
Pennsylvania.....	Niagara.....	175 ft. west of Fourth.....	6	R	24 ft. n. of s. line.
Pennsylvania.....	Prospect avenue.....	150 feet easterly.....	4	H	.....
Pennsylvania.....	West avenue.....	Plymouth avenue	6	R	.....
Pennsylvania.....	Plymouth avenue.....	150 ft. east of Thirteenth.....	6	H	25 ft. n. of s. line.
Pennsylvania.....	Fourteenth.....	Wadsworth	24	H	.....

Pennsylvania.....	Fifth.....	250 ft. westerly.....	R	3	.....	25 ft. e. of w. line.
Plymouth avenue.....	Hudson.....	Jersey.....	H	6	.....	38 ft. w. of e. line.
Plymouth avenue.....	Porter avenue.....	Connecticut.....	H	16	.....	41 ft. w. of e. line.
Plymouth avenue.....	Connecticut.....	Rhode Island.....	H	6	.....	25 ft. e. of w. line.
Plymouth avenue.....	Rhode Island.....	Massachusetts.....	H	6	.....	43 ft. w. of e. line.
Porter avenue.....	Massachusetts.....	250 ft. northerly.....	R	4	.....	21 ft. n. of s. line.
Porter avenue.....	Sixth.....	200 ft. west of Fourth.....	R	6	.....	.....
Porter avenue.....	Sixth.....	Seventh.....	H	6	.....	.....
Porter avenue.....	Seventh.....	Prospect avenue.....	H	20	.....	.....
Porter avenue.....	Prospect avenue.....	West avenue.....	H	24	.....	8 ft. n. of s. line.
Porter avenue.....	West avenue.....	Fourteenth.....	R	24	.....	.....
Porter avenue.....	Prospect avenue.....	West avenue.....	H	12	.....	.....
Porter avenue.....	Fourteenth.....	The Circle.....	R	4	.....	.....
Prime.....	Main.....	Hanover.....	R	6	.....	38 ft. e. of w. line.
Prospect avenue.....	Huron.....	Hudson.....	H	6	.....	25 ft. w. of e. line.
Prospect avenue.....	Hudson.....	Porter avenue.....	R	24	.....	.....
Prospect avenue.....	Porter avenue.....	Vermont.....	H	20	.....	17 ft. w. of e. line.
Prospect avenue.....	Porter avenue.....	Connecticut.....	H	4	.....	42 ft. w. of e. line.
Prospect avenue.....	Connecticut.....	Vermont.....	H	6	.....	42 ft. w. of e. line.
Prospect avenue.....	Vermont.....	Hampshire.....	R	6	.....	25 ft. s. of n. line.
Prospect avenue.....	Hampshire.....	Niagara.....	H	4	.....	13 ft. s. of n. line.
Penfield.....	West avenue.....	250 ft. westerly.....	H	6	.....	40 ft. s. of n. line.
Public alley.....	Jersey.....	Fourteenth.....	H	16	.....	25 ft. n. of s. line.
Rhode Island.....	Sixth.....	Niagara.....	H	6	.....	16 ft. e. of w. line.
Rhode Island.....	Prospect avenue.....	Richmond avenue.....	R	6	.....	41 ft. e. of w. line.
Richmond avenue.....	Jersey.....	Forest avenue.....	H	4	.....	39 ft. s. of n. line.
River.....	Erie.....	Peacock Slip.....	R	12	.....	.....
Seneca.....	Main.....	Franklin.....	R	6	.....	.....
Seneca.....	Main.....	Terrace.....	R	6	.....	.....
Seneca.....	Main.....	100 feet westerly.....	R	6	.....	.....
School.....	Fargo avenue.....	Prospect avenue.....	R	6	.....	22 ft. e. of w. line.
Seventeenth.....	Vermont.....	Connecticut.....	H	6	.....	24 ft. e. of w. line.
Seventeenth.....	Richmond avenue.....	Connecticut.....	R	36	.....	.....
Seventh.....	Court.....	Massachusetts.....	R	4	.....	33 ft. e. of w. line.
Seventh.....	Wilkeson.....	Georgia.....	R	6	.....	40 ft w. of e. line.
Seventh.....	Georgia.....	Porter avenue.....	R	6	.....	.....

Schedule of Water Pipe Laid in the City, giving Location, Size of Pipe, and on What System.

Street.	From	To	Size of Pipe. Inches.	Material.	Location of Pipe.
Seventh	Porter avenue	Vermont	4	H	26 ft. e. of w. line.
Seventh	Vermont	Rhode Island	3	H	12 ft. e. of w. line.
Seventh	Vermont	Massachusetts	30	R	.....
Seventh	Rhode Island	Massachusetts	6	H	33 ft. w. of e. line.
Seventh	Massachusetts	Front avenue	12	R	.....
Seventh	Store-house	Court	14	R	.....
Shields avenue	Massachusetts	Utica	6	H	23 ft. e. of w. line.
Sixteenth	York	Vermont	6	H	40 ft. w. of e. line.
Sixth	Court	Carolina	6	R	24 ft. w. of e. line.
Sixth	Court	Porter avenue	20	R	48 ft. w. of e. line.
State	Canal	Water	4	R	.....
St. John's Place	Wadsworth	225 ft. westerly	4	H	32 ft. s. of n. line.
St. John's Place	Orton Place	325 ft. easterly	4	H	47 ft. n. of s. line.
Summer	Main	Howard avenue	6	H	44 ft. n. of s. line.
Swan	Main	Pearl	6	H	.....
Tenth	Carolina	Hudson	6	R	25 ft. w. of e. line.
Terrace, lower	Court	Seneca	20	R	61 ft. e. of w. line.
Terrace, lower	Court	Mechanic	6	R	26 ft. e. of w. line.
Terrace, upper	Seneca	Main	20	R	118 ft. e. of w. line.
Terrace, upper	Pearl	Main	6	R	.....
Terrace, upper	Eagle	Daw alley	6	R	13 ft. w. of e. line.
Terrace, upper	Court	275 ft. southerly	4	R	11 ft. w. of e. line.
Terrace	Franklin	Evans	6	R	.....
Thirteenth	Pennsylvania	Jersey	6	H	38 ft. w. of e. line.
Thirteenth	York	390 ft. southerly	4	H	13 ft. e. of w. line.
Thirteenth	York	Rhode Island	6	H	44 ft. w. of e. line.

Thirteenth.....	Rhode Island.....	Massachusetts.....	6	H	44 ft. w. of e. line.
Thirteenth.....	Massachusetts.....	Hampshire.....	6	H	37 ft. w. of e. line.
Tonawanda.....	Amherst.....	500 ft. southerly.....	4	R	22 ft. w. of e. line.
Tracy.....	Delaware avenue.....	Carolina.....	4	R	16 ft. n. of s. line.
Tupper.....	Main.....	Virginia.....	20	R	21 ft. s. of n. line.
Tupper.....	Delaware avenue.....	500 ft. westerly.....	4	H	33 ft. s. of n. line.
Twelfth.....	Virginia.....	Maryland.....	6	H	28 ft. w. of e. line.
Utica.....	Main.....	Linwood avenue.....	6	H	.....
Utica.....	Linwood avenue.....	Delaware avenue.....	4	H	27 ft. n. of s. line.
Utica.....	Delaware avenue.....	160 ft. w. of Elmwood.....	6	H	19 ft. n. of s. line.
Utica.....	Elmwood avenue.....	125 ft. westerly.....	4	H	14 ft. s. of n. line.
Utica.....	Chenango.....	Eighteenth.....	6	H	37 ft. s. of n. line.
Utica.....	Shields avenue.....	Massachusetts.....	6	H	19 ft. s. of n. line.
Vermont.....	Richmond avenue.....	West avenue.....	6	H	27 ft. n. of s. line.
Vermont.....	West avenue.....	Niagara.....	16	H	57 ft. s. of n. line.
Vermont.....	Prospect avenue.....	Seventh.....	24	R	.....
Vermont.....	Seventh.....	Front avenue.....	20	R	.....
Vermont.....	Seventh.....	Front avenue.....	3	H	52 ft. s. of n. line.
Vermont.....	Niagara.....	Seventh.....	36	R	40 ft. s. of w. line.
Vermont.....	Niagara.....	Seventh.....	4	H	40 ft. s. of n. line.
Virginia.....	Cottage.....	Tupper.....	6	H	39 ft. s. of n. line.
Virginia.....	Cottage.....	Franklin.....	10	H	25 ft. n. of s. line.
Virginia.....	Tupper.....	West avenue.....	20	R	56 ft. n. of s. line.
Virginia.....	West avenue.....	Prospect avenue.....	6	R	39 ft. n. of s. line.
Virginia.....	Seventh.....	Sixth.....	6	R	39 ft. s. of n. line.
Virginia.....	Fifth.....	Front avenue.....	6	R	25 ft. n. of s. line.
Wadsworth.....	Allen.....	Pennsylvania.....	24	H	16 ft. n. of s. line.
Wadsworth Place.....	College.....	Wadsworth Park.....	6	H	.....
Water.....	Commercial.....	Norton.....	6	R	.....
West avenue.....	Carolina.....	Virginia.....	6	R	26 ft. w. of e. line.
West avenue.....	Virginia.....	Porter avenue.....	20	R	39 ft. e. of w. line.
West avenue.....	Porter avenue.....	600 ft. southerly.....	4	H	.....
West avenue.....	Porter avenue.....	Connecticut.....	6	H	38 ft. w. of e. line.
West avenue.....	Connecticut.....	Vermont.....	16	H	26 ft. e. of w. line.
West avenue.....	Albany.....	Breckenridge.....	6	R	22 ft. e. of w. line.
West avenue.....	Breckenridge.....	Forest avenue.....	16	R	24 ft. e. of w. line.

PUMPING
DEPARTMENT.
1885.

*PUMPING DEPARTMENT.***PUMPING ENGINES AND THEIR CAPACITY PER 24 HOURS.***I. Lower House.*

Engine No. 1, Worthington.....	10,000,000 gallons.
“ “ 2, “	15,000,000 “
“ “ 3, “	15,000,000 “
“ “ 4, Gaskill.	15,000,000 “

II. Upper House (Distributing.)

Engine No. 2, Holly.....	6,000,000 gallons.
“ “ 1, “ Reserve.....	3,000,000 “
Water Pumped 1885.....	10,441,393,340 “
“ “ 1884.....	8,789,971,200 “
<hr/>	
Increase, 1885.....	1,651,422,140 gallons.

DAILY SUPPLY.

The average daily supply for the year 1885 was twenty-eight million six hundred and six thousand five hundred and fifty-seven gallons, an increase of four million five hundred and twenty-four thousand four hundred and forty-five gallons over the previous year. On the following days the greatest and least amounts were pumped:

SEVENTEENTH ANNUAL REPORT OF

GREATEST AMOUNTS PUMPED.

Wednesday, February 11, 1885.....	42,401,100 gallons.
Tuesday, March 17, 1885.....	43,051,500 "
Saturday, March 21, 1885.....	42,705,100 "

LEAST AMOUNTS PUMPED.

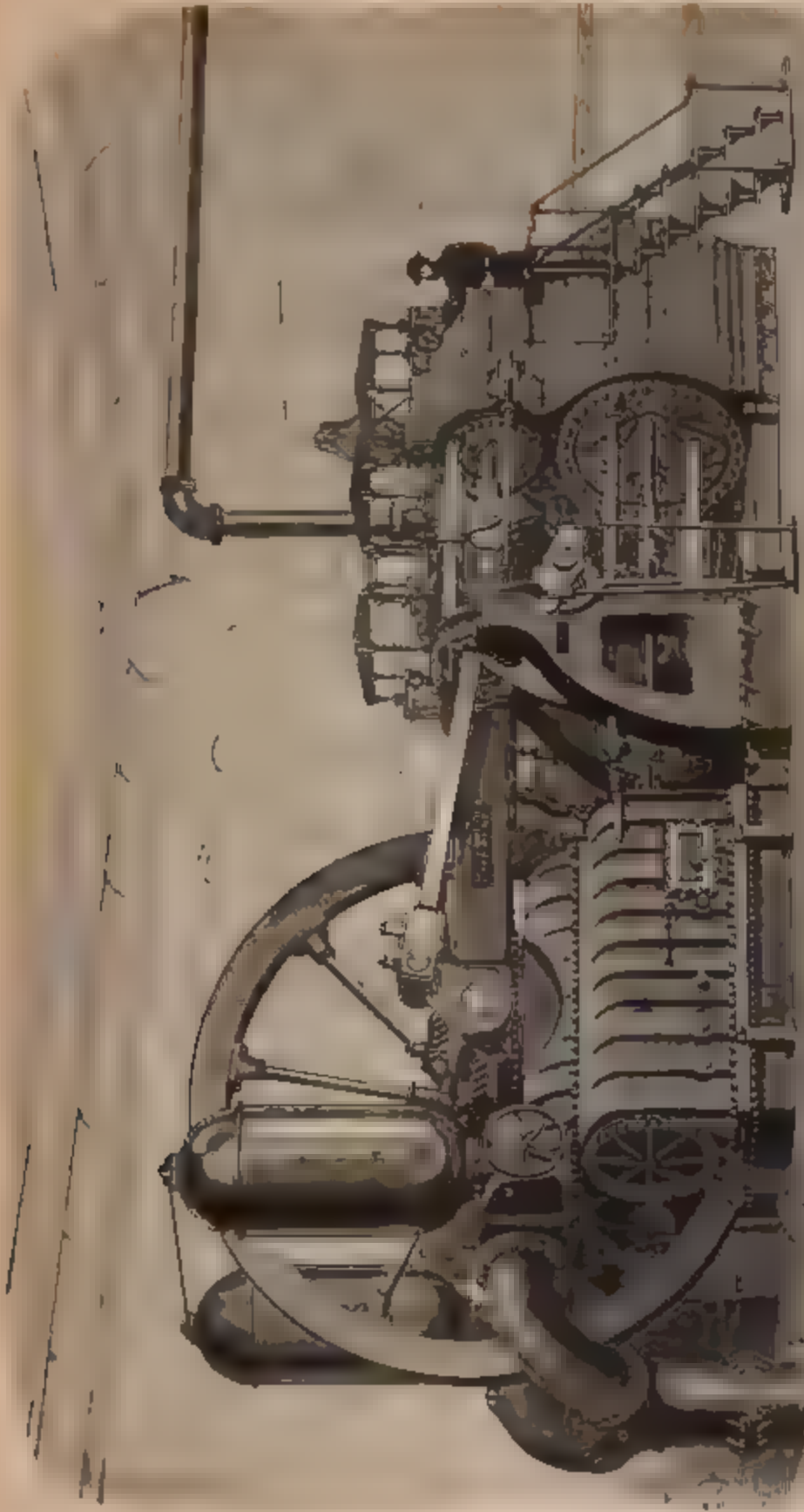
Sunday, May 10, 1885.....	18,855,900 gallons
" September 6, 1885.....	21,388,500 "
" October 4, 1885... ..	21,346,200 "

Gallons of Water Raised with One Pound of Coal.	Average Daily Height of Water in Reservoir.		DUTY OF ENGINES, Nos. 1, 2 AND 3.			
			LOW SERVICE.			HIGH SERVICE.
	Feet.	Inches.	No. 1.	No. 2.	No. 3.	No. 3.
686	19	4	47.342,380	41,657,888	44.583,155	.....
578	19	9	42 419,874	49,108,689	48,312.943	58,204,626
582	19	6	44,120,640	46,040,776	48.146,133	54,012,714
584	19	5	43,366,913	48,169,125	51,442,614	58,612,627
560	19	7	39,579,610	44,273,483	47.870,444	... ..
528	19	7	40,711,330	48,488,596	40.532,464	51,829,987
516	19	6	50 065 671	45,680,920	48,292.011	51,028,738
601	19	8	48,244,748	47,796,073	47.924,822	.....
597	19	7	47,515,912	48,442,215	48,613.346	57,396,292
640	19	7	50,254,686	46,786,078	50 566,165	.....
695	18	2	47,178,329	47,732,899	43,462,608	51,859,130
626	19	8	40,480,000	46 430,220	49 323,462	58,967,310
.....						
*599 582	19	5	45,106,674	46,717,242	47,422,514	55,238,928
587	19	7	47,013,728	48,905,028	53,749,733	58,021,900

and December.

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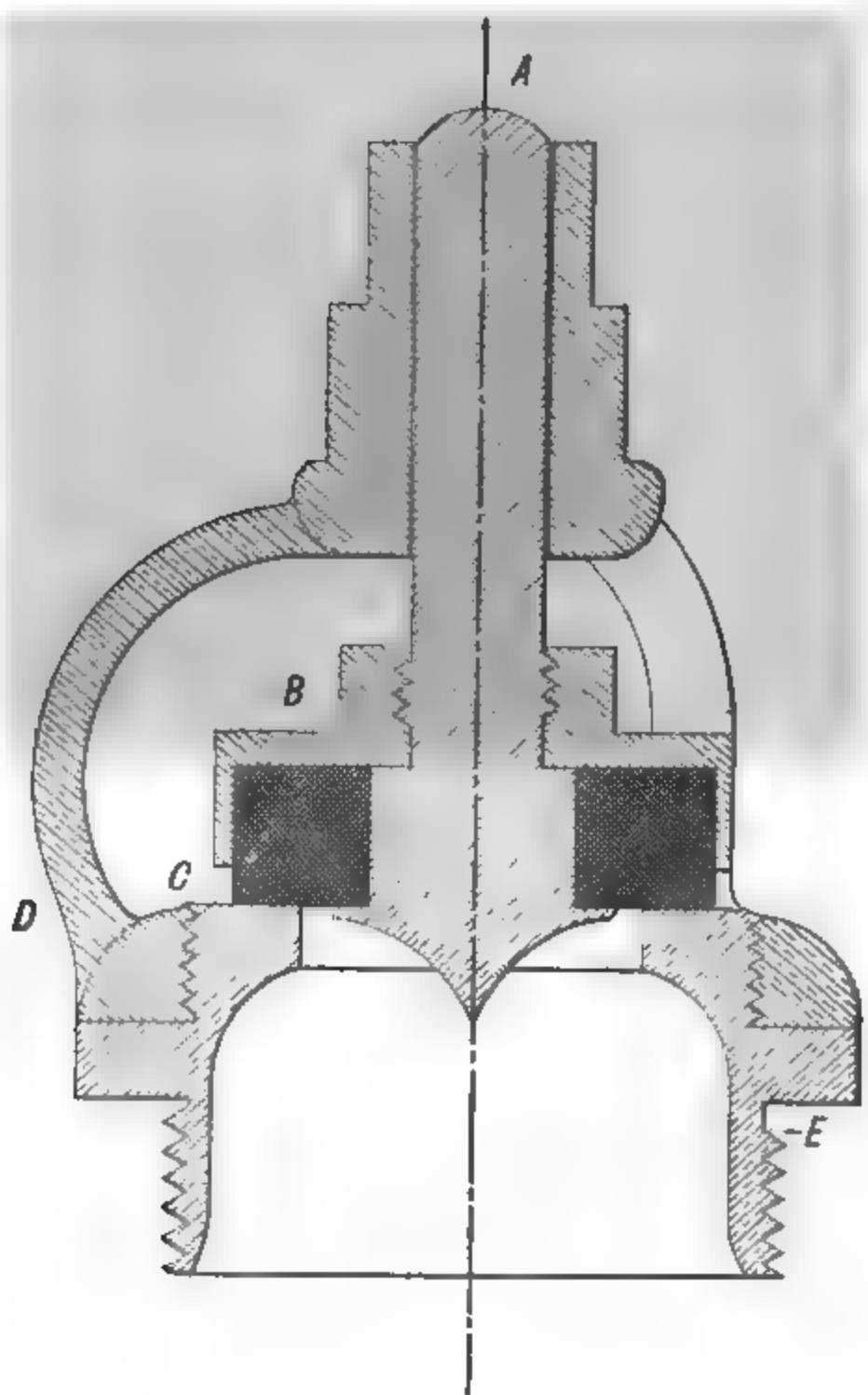


GASKILL'S HORIZONTAL COMPOUND PUMPING ENGINE,

HOFFALO. N. Y., 1885.

GASKILL'S HORIZONTAL COMPOUND PUMPING ENGINE

BUFFALO, N. Y., 1885.



SECTION OF PUMP VALVE.

REPORT ON CONTRACT TRIALS, GASKILL PUMPING ENGINE,

Buffalo, N. Y., December, 1885.

To the Honorable Board of Water Commissioners of the City of Buffalo: Louis P. Reichert, James Ryan, G. W. Miller:

GENTLEMEN:—I have the honor to report to you upon the performance of the Gaskill Compound Pumping Engine recently erected in your lower pump-house by the Holly Manufacturing Company, of Lockport, N. Y., as follows:

The engine is of the horizontal beam rotative type, compound condensing, and is really two independent and complete engines coupled—with cranks at quarters upon the shaft—with one fly-wheel common to both.

The high-pressure steam cylinders are placed above and parallel with the low-pressure steam cylinders, with their pistons moving in opposite directions.

Each half of the engine contains one high-pressure steam cylinder, one low-pressure steam cylinder and one double-acting plunger pump, with central packed gland.

The steam cylinders are jacketed sides and heads.

The pumps are in line with the low-pressure cylinders, with stiff connections between the low-pressure pistons and the plungers.

The housings which support the engine beams are placed between the pumps and steam cylinders, with the bearings for beam centres midway between the centre line of high and low-pressure steam cylinders.

The upper pins of the engine beams are connected by means of short links to the pins of the cross-heads of high-pressure pistons, and the lower pins of the beams are similarly connected to the pins of the cross-heads of low-pressure pistons.

The power developed in the high-pressure cylinders is transmitted through the engine beams to the pump-plungers, and the power developed in the low-pressure cylinders is transmitted to the pump-plungers direct through stiff connections.

The low-pressure steam cylinders, housings for the beam centres, and pump barrels are tied, and braced together upon the horizontal centre lines of the several parts.

The dimensions of steam cylinders taken from contractor's specifications are as follows:

High-pressure cylinders.....	33' diam.
Low-pressure cylinders.....	66' diam.

The diameters of plungers, plunger-rods and strokes of plungers and low-pressure pistons, were carefully measured after the duty trial by the writer and found to be as follows:

Engine "A," diam. plunger, inches.....	34.02
Engine "A," diam. plunger-rod, inches.....	6.00
Engine "A," stroke of plunger and low-pressure piston, inches.....	47.875
Engine "B," diam. plunger, inches.....	34.03
Engine "B," diam. plunger-rod, inches.....	6.00
Engine "B," stroke of plunger and low-pressure piston, inches.....	47.72

The boilers supplying steam to the engine were furnished by the contractor and form a part of his general plant, and are of the following dimensions obtained from contractor's specifications:

Style of boilers, return tubular.	
Number of boilers.....	6
Diam. of boilers, inches.....	66

Length of boilers, feet.	18
Tubes, number.	80
Tubes, diameter, inches.	3½
Tubes, effective length, feet	18
Steam domes, one to each boiler, diam., inches.	33
Steam domes, one to each boiler, height, inches.	42
Main steam pipe to engine, diam., inches.	10

The contractor's guarantees are:

First. A delivery of 15,000,000 U. S. Standard gallons per diem of 24 hours, against a head of 185 feet above water pressure gauge, with a piston speed of 120 feet per minute.

Second. A duty of engine and boilers as a plant, of 100,000,000 foot pounds for each 100 pounds of coal consumed, with a steam pressure of 80 pounds.

Third. A duty of engine and boilers as a plant, of 90,000,000 foot pounds for each 100 pounds of coal consumed, with a steam pressure of 80 pounds, for 1800 hours operation during a period of 90 days, as required by your printed specification dated Sept. 27th, 1883.

The compliance of the machinery with the first and second of these guarantees it has been my duty to investigate and report on. The compliance of the machinery with the third guarantee being otherwise provided for in your printed specification noted above.

The requirements of your printed specification under which the machinery was furnished are:

First. A capacity trial of 24 hours duration.

Second. A duty trial of 48 hours to follow the capacity trial without stopping the machinery.

Third. A working trial of 1800 hours to be accomplished within the limits of three months operation of the machinery.

The working trial to commence within two weeks of the completion of duty and capacity trials.

The capacity trial of 24 hours duration began at 10:30 A. M. Tuesday, Dec. 1st, and terminated at 10:30 A. M. Wednesday, Dec. 2d, with the following results:

Counter on engine, 10:30 A. M., Dec. 1st.....	378,079
Counter on engine, 10:30 A. M., Dec. 2d.....	400,078
Revolutions of engine in 24 hours.....	21,999
Revolutions of engine per hour.....	916.625
Revolutions of engine per minute.....	15.27708

Mean area plunger "A" engine:

$$34.02^2 \times 0.7854 - \frac{6^2 \times 0.7854}{2} = 894.854 \text{ sq. inches.}$$

Mean area plunger "B" engine:

$$34.03^2 \times 0.7854 - \frac{5^2 \times 0.7854}{2} = 895.388 \text{ sq. inches.}$$

Stroke of plunger, "A" engine, feet.....	3.9895
Stroke of plunger, "B" engine, feet.....	3.9767

The printed specification requires the capacities of the pumps to be estimated by the following formula, in which the efficiency of the pumps is taken at 0.97 or with an allowance of 3 per cent. "for loss of action due to the probable imperfect filling of the pumps."

$$Q = 145.122 \times A \times N \times S,$$

in which

Q=delivery of pumps in U. S. gallon per diem of 24 hours.

145.122=a constant representing the effective capacity of pumps per sq. inch of plunger for a travel of one foot per minute for a period of 24 hours, and is obtained as follows:

$$\frac{1 \times 12 \times 1440 \times 2 \times 0.97}{231} = 145.122$$

A=the sum of the effective areas of all the pump-plungers in sq. inches,

$$894.854 + 895.388 = 1790.242$$

N=average revolutions of engine or double strokes of pump-plungers, per minute,

$$15.27708$$

S=average strokes of both pump-plungers in feet,

$$\frac{3.9895+3.9767}{2}=3.9831$$

and delivery of pump during capacity trial was
 $Q=145.122\times1790.242\times15.27708\times3.9831=15,809,078.617$ gallons for a period of 24 hours.

But the contract requires a daily delivery of 15,000,000 gallons at a piston speed of 120 feet, or $\frac{120}{3.9831\times2}=15.06365$ revolutions per minute, whence the capacity of the pumps at contract speed becomes $145.122\times1790.242\times15.06365\times3.9831=15,588,209.97$ gallons.

Comparing the contractor's guarantee and actual performance of the pumps we have:

Guaranteed capacity in 24 hours at 120 feet piston speed,	
per minute.....	15,000,000 gallons
Actual capacity of pumps at a piston speed of 120 feet per	
minute.....	15,588,209.97 gallons
Excess of capacity over contractor's guarantee, per diem	588,209.97 gallons

which is nearly four per cent. of guaranteed capacity.

Subsequent to the duty trial an extra trial for capacity was made for a period of one hour, during which time the engine was operated at an average speed of 18 revolutions per minute, corresponding to a daily delivery of

$$145.221\times1790.242\times18\times3.9831=18,626,256.43\text{ gallons,}$$

showing an excess above the nominal capacity of pumps of 3,626,256.43 gallons per diem of 24 hours.

During the contract capacity trial of 24 hours, the steam and water pressure gauges were read and recorded every 15 minutes, with the following averages:

Steam pressure (at engine), pounds.....	78.895
Error of gauge +2.000.....	80.895
Less water column on gauge....	2.072
Corrected gauge pressure.....	78.823
Water pressure by gauge, pounds.....	79.4427
Water pressure by gauge, feet.....	183.3537
Center of water pressure gauge to surface of water in pump well	{ pounds 10.652
	{ feet. . 24.5

The coal burned during the capacity trial of 24 hours was weighed on a sealed scale in the boiler-room in uniform charges of 275 pounds to each furnace.

The furnaces under the four boilers used for the capacity trial were fired in rotation every 15 minutes, with one extra charge of 275 pounds to No 1 furnace at 4:03 A. M. Dec. 2d, one extra charge to same furnace at 7:50 A. M. same date, and one extra charge divided equally between No. 3 and 4 furnaces at 10:08 A. M. Dec. 2d, making a total consumption for 24 hours of 27,225 pounds, or at the rate of 1134.37 pounds per hour.

The trial for duty began at 10:30 A. M. Wednesday, Dec. 2d, and terminated at 10:30 A. M. Friday, Dec. 4th, embracing an uninterrupted operation of the machinery for a period of 48 hours, previous to which time the machinery had operated under conditions of capacity trial for a period of 24 hours, making a total run without break for any purpose whatever of 72 hours.

During the duty trial the steam and water pressure gauges and the engine counter were read and recorded every 15 minutes.

The barometer, temperatures of air in engine room, injection to condenser and hot well were read hourly.

The water levels in boilers, steam gauges on boilers and temperatures of feed water to boilers were read half-hourly.

The coal to furnaces was weighed in the boiler-room in uniform charges of 275 pounds each, and dumped in front of the boilers; and during the duty trial the furnaces and boilers, of which three were used, were fired at intervals of 15 minutes, in regular rotation.

The time of firing each charge to each furnace, the time of cleaning or slicing the respective fires, and the weights of ash and clinker from the furnaces were regularly entered in the coal record by an assistant, stationed in the boiler-house.

During the 48 hours of duty trial there were small quantities of coal thrown back at times from the regular charges weighed to the boilers, at the discretion of the contractor, to be used in case of necessity after the cleaning of fires.

Engine counter at 10:30 A. M. December 2d.....	400,078
Engine counter at 10:30 A. M. December 4th.....	433,045
Revolutions in 48 hours	42,967
Revolutions per hour.....	895.146
Revolutions per minute.....	14.9191
Piston speed per minute during 48 hours of duty trial, feet.....	118.848+
Mean head by water pressure gauge, 193 readings, pounds.....	79.700
Mean difference, center of water pressure gauge and surface of water in pump-well { feet.....	23.7025
{ pounds.....	10.305
Contract allowance for friction of water passages in pumps, pounds.	1.000
Total head as per printed specification, pounds.....	91.005
Coal charged to boilers No. 2, 3 and 4 during 48 hours of duty trial, 192 charges of 275 pounds	52,800.
Coal weighed back at 10:30 A. M. Dec. 4th, pounds.....	992.
Coal burned during trial, pounds.....	51,808.
Coal burned per hour, pounds.....	1,079.333
Coal burned per minute, pounds.....	17.9889

And duty obtained as per formula of printed specification,

$$D = \frac{200 \times A \times P \times N \times S}{C}$$

where D—duty in foot pounds per hundred pounds of coal.

A—aggregate mean area of pump-plungers—1790.242 sq. inches.

P—mean pressure per sq. inch of pump-plungers—91.005 pounds.

N—mean revolutions, or double stroke of engine—14.9191 per minute.

S—average stroke of both pump-plungers—3.9831 feet,

then,

$$D = \frac{200 \times 1790.242 \times 91.005 \times 14.9191 \times 3.9831}{17.9889} = 107,638,148.482$$

foot pounds.

The average pressure in steam pipe from 193 readings of steam gauge during the duty trial was, pounds.

80.276

Error of gauge, 2.000 pounds.

82.276

Less water column on guage.

2.072

Corrected steam pressure, pounds.

80.204

Comparing the contractor's guarantee and the actual performance of the machinery, we have:

Guaranteed duty for 100 pounds of coal burned during

48 hours of contract trial.

100,000,000 foot pounds

Actual duty per 100 pounds of coal burned during

48 hours of trial

107,638,148.482 foot pounds

Excess of duty over contractor's guarantee.

7,638,148.482 foot pounds

or over 7.6 per cent.

Upon completion of the 72 hours operation for duty and capacity trials, the bearings all around the engine were examined and none found warmed.

In addition to the data already noted for duty trial indicator diagrams from all the steam cylinders were taken regularly every hour for 48 hours, and indicator diagrams from the pumps were taken hourly during the last 24 hours of trial.

Subsequent to the trials for duty and capacity the steam and water pressure gauges were removed from the engine and boilers and compared with an accurate test gauge for correction of errors of readings.

The general performance of the engine during the trials was very satisfactory, and I venture the opinion that the continuous operation of the machinery will be satisfactory to your Board and be beneficial to the water department.

During Dec. 7th the boilers and furnaces were tested for economy, in order to separate the work of the engine from the work of the boilers, and to compare the duty of the engine with the duties obtained from other pumping engines upon the basis of a uniform boiler economy.

The results of which, together with a more detailed report upon the trials of the machinery, I will submit at an early date.

Very obediently yours,

JOHN W. HILL.

BUFFALO, N. Y., Dec. 8th, 1885.

GENERAL REPORT.

In the preliminary report, submitted Dec. 8th, upon completion of the trials, I confined myself to the requirements of the printed specification and the guarantee of the builder in his proposition to the Water Commissioners.

In order that the record of the trials may be more fully presented to you and others interested in pumping engines of the first class, I have carefully reviewed the data taken at Buffalo, and append the following statement of dimensions of machinery and results of the several tests of engine and boilers.

DESCRIPTION OF ENGINE.

Style.—Compound condensing, beam rotative, cylinders and pumps arranged horizontally, high-pressure cylinders over low-pressure cylinders, low-pressure cylinders in line with the pumps, steam cylinders, jacketed heads and sides; pumps, double-acting plunger, central packed gland; beam arranged vertically, with end pins connected by short links with cross-heads of high and low-pressure pistons; single shaft and fly-wheel, with two cranks at quarters; one high-pressure steam cylinder, one low-pressure steam cylinder, and one pump to each half of engine.

DIMENSIONS OF ENGINE.—STEAM CYLINDERS.

H. P. cylinders (2), diam., inches.....	33.
L. P. cylinders (2), diam., inches.....	66.
H. P. piston rods (single), diam., inches.	4.5
L. P. piston rods (double), diam., inches.....	5.
Stroke H. P. and L. P. pistons—engine "A".....	47.875
Stroke H. P. and L. P. pistons—engine "B".....	47.72
Steam cylinders (4) jacketed.	
Steam cylinders, heads (8) jacketed.	
Clearance H. P. and L. P. cylinders.....	0.025

STEAM VALVES AND PORTS.

Cut-off valves, style, double-beat puppet.	
Cut-off valves, diam. upper seat, inches.....	9.125
Cut-off valves, diam. lower seat, inches.....	7.875
Cut-off valves, lift, inches.....	0.75
Cut-off valves, area of opening, sq. inches.....	40 055
Intermediate valves, style, gridiron slides.	
Intermediate valves, 5 openings, in seat.....	1"×13"
Intermediate valves, area of openings, sq. inches.....	65.
Exhaust valves, style, gridiron slides.	
Exhaust valves, 10 openings in seat.....	1"×13"

Exhaust valves, area of openings, sq. inches.....	130.
Steam ports H. P. cylinders.....	3"×11"
Steam ports H. P. cylinders, area, sq. inch.....	33.
Intermediate ports, from H. P. to L. P. cylinders.....	3.5"×20"
Intermediate ports, area, sq. inches.....	70.
Exhaust ports L. P. cylinders.....	3.5"×37.5
Exhaust ports L. P. cylinders, area, sq. inches.....	131.25

CONDENSERS AND AIR PUMPS.

Condensers, style, "jet."	
Condensers, number.....	2.
Condensers, diam., inches.....	54.
Condensers, height, inches.....	30.
Air pumps, style, single-acting.	
Air pumps, number.....	4.
Air pumps, diam., inches.....	24.
Air pumps, stroke, inches....	27.
Exhaust pipe to condenser, diameter, inches.....	14.
Injection pipe to condenser, diameter, inches.....	6.

STEAM PIPES.

Main steam pipe, diam., inches.....	10.
Main steam pipe, length, feet.....	150.
Branch steam pipe (2), diam., inches	8.
In the main steam pipe at the engine, just above the branch pipes, there is placed a quick-acting, rotative throttle valve, and in each branch pipe there is one open way screw valve.	
Right angle bends in main steam pipe.....	4.
The steam pipe is provided with "variation" or expan- sion joints to compensate for alterations of length at different temperatures.	

BEAMS, CRANKS, SHAFT AND FLY-WHEEL.

Beams, one to each side (A and B) of engine.

Beams, center to center of end pins, inches.....	76.5
Beams, center bearings.....	12"X21"
Beams, upper end pins.....	7"X17"
Beams, lower end pins.....	7"X8"
Crank pins (2).....	8.5"X10.5"
Crank shaft, diam. at fly-wheel, inches.....	16.5
Crank shaft, diam. at bearings, inches.....	15.0
Fly-wheel, diam., feet.....	20.0
Fly-wheel, weight, tons.....	25.
Total weight of engine, pounds.....	700,000.

FEED PUMPS.

The beam shaft upon each side of engine has a prolongation—of reduced diameter—inwards, towards center line between the two sides of engine. This shaft is provided with a standard bearing near its inner end, and has keyed to it two small, equal armed beams, the larger of which works the air pumps, and the smaller works the boiler feed pumps.

Feed pumps, style, single-acting plunger.

Feed pumps, number.....	4.
Feed pumps, diam., inches.....	6.
Feed pumps, stroke, inches.....	11.

PUMPS.

Pumps, style, double-acting plunger with central packed gland.

Pumps, number.....	2.
Pumps, diam. plunger "A," inches.....	34.02
Pumps, diam. plunger "B," inches.....	34.03
Pumps, diam. plunger-rods (2), inches.....	6.
Pumps, stroke plunger "A," inches.....	47.875

Pumps, stroke plunger " B," inches.....	47.72
The pump valves are of vulcanized rubber set in composition shells, with an upwardly projecting stem guided in the hub of a cage which screws down over the outside of valve seat. The valve seats are of composition, screwed into the diaphragms of valve chambers, without bridges or ribs, and presenting an unobstructed circular waterway when the valve rises from the seat.	
Pump valves, sets to each pump.....	4.
Pump valves, number in each set.....	252.
Pump valves, diam. of opening in seat, inches.....	1.3125
Pump valves, diam. of rubber disk, inches.....	1.75
Pump valves, thickness of rubber disk, inches.....	0.5
Pump valves, lift, inches.....	0.3125
Pump valves, area through seats, one set, sq. inches..	340.956
Pump valves, area through waterway at 5-16 inch lift sq. inches.....	432.952

SUCTION AND DISCHARGE PIPES.

Principal suction pipe, diam., inches.....	36.
Branch suction pipe (2), diam., inches.....	30.
Principal discharge pipe, diam., inches.....	36.
Branch discharge pipe, (2), diam., inches.....	30.
Stop valves in both branches of suction and discharge pipes.	

CALCULATED DATA.

Volume of high-pressure cylinder, including clearance, cu. ft.....	24.0237
Volume of low-pressure cylinder, including clearance, and clearance of high-pressure cylinder, cu. ft.....	97.0265
Ratio volume of low-pressure to volume of high-pressure cylinder.....	4.0387

Volume of displacement, L. P. pistons (2), per hour, during 48 hours of duty trial, cu. ft.....	336,891.4
Volume of clearance, L. P. cylinders (2), per hour, during 48 hours of duty trial, cu. ft.....	8,422.3
Velocity of flow per second for the water through pump valves for a plunger travel of 120 feet per minute, ft.	2.6628
Displacement of both pump plungers per revolution of engine, galls.....	742.858

BOILERS.

The boilers furnished by the contractor as part of his plant are of the return tubular type, set in independent furnaces, with independent smoke, steam and feed water connections, whereby any one or more of the boilers may be operated or laid off at will without interfering with the operation of the remainder of the battery.

The boilers are set to have three transits of the hot gas for the full length of shell, once under the shell, thence forward through the tubes, and finally back over the top of shells to the main flue at the rear end of setting. There are six boilers in the battery of the following dimensions:

Diam. of shells, inches.....	66.
Length of shells, feet.....	18.
Tubes, number.....	80.
Tubes, diam. outside, inches.	3.5
Tubes, length, feet.....	18.
Grate, length of bars, inches.....	68.
Grate, width of furnace (each), ft.....	6.
Steam dome, one to each boiler, diam., inches.....	33.
Steam dome, one to each boiler, height, inches.....	42.
Heating surface, shell.....	164.507
Heating surface, tubes.....	1319.472
Heating surface, heads.....	18.413
Total, one boiler, sq. ft.....	1502.392

Super-heating surface, one boiler, sq. ft.....	90.206
Grate surface, one boiler, sq. ft.....	34.
Ratio heating to grate surface.....	44.188
Cross-section of tubes, sq. ft.....	4.261
Ratio grate surface to cross-sections of tubes.....	7.979
Grate to boiler, front, inches.....	32.
Grate to boiler, back, inches.....	30.
Grate to boiler, floor of ash pit, inches.....	20.
Bridge wall concentric to boiler shell.	
Bridge wall to boiler shell, inches.....	6.
Chimney, cross-section, 8'×8' sq. ft.....	64.
Chimney, height, ft.....	125.

In constructing the furnace fronts of the boiler setting, the contractor has provided a double set of fire doors, one immediately above the grate level, and the other about $4\frac{1}{2}$ inches above the first, for charging and cleaning fires, which enables the fireman to distribute the coal over the grate to better advantage than through the usual single bank of doors at grate level, and to slice and clean fires through the lower doors without exposing the heated shell of the boiler to the chilling currents of cold air entering the furnace.

The chimney is immense for the present number of boilers, and entirely out of proportion to the number used in the trials for "capacity," "duty," and for test of economy of boilers, which were four for the first trial and three for each of the others, respectively.

During the duty trial and trial for economy of boilers with three boilers in use, a chimney 4 ft. 6 inches square, would have given better results in economy than the present stack.

I regard the stack as ample for 15 to 18 boilers of same size.

CAPACITY AND DUTY TRIALS.

The complete record of data, owing to the duration of trials and frequency of observation, are too cumbersome for publication, and are only useful as showing the uniformity of conditions under which the engine and boilers were worked.

Complete tables of data are therefore omitted, and the first and last readings and averages at the several stations of observation alone are given.

CAPACITY TRIAL.

This trial lasted 24 hours, during which interval of time the following data was taken:

Steam gauge boilers No. 1, No. 2, No. 3 and No. 4, water gauges same boilers, and temperature of feed water to boilers at beginning and end of trial and regularly at half-hourly intervals between, with the following results:

Steam pressures at 10:30 A. M. Dec. 1st, 1885:

Boilers	No. 1.	No. 2.	No. 3.	No. 4.
Pressure by gauge.....	87.00	83.00	81.00	83.00
Correction.....	-2.50	+0.5	+2.00	+1.00
Corrected pressure.....	84.50	83.50	83.00	84.00

Steam pressure at 10:30 A. M. Dec. 2d, 1885:

Pressure by gauge.....	86.00	82.00	80.00	82.00
Corrected pressure...	83.50	82.50	82.00	83.00

Steam pressure average for 24 hours, 49 readings:

Boilers.....	No. 1.	No. 2.	No. 3.	No. 4.
Pressure by gauge.....	84.74	80.8	79.406	81.09
Corrected pressure....	82.24	81.3	81.406	82.09

WATER GAUGES.

Levels in inches above lower nuts on glass tubes at 10:30 A. M. Dec. 1st, 1885:

Boilers.....	No. 1.	No. 2.	No. 3.	No. 4.
Levels.....	7.25	5.5	5.25	5.
23.00 inches.				

Levels at 10:30 A. M. Dec. 2d:

Boilers.....	No. 1.	No. 2.	No. 3.	No. 4.
Levels.....	5.75	6.00	4.75	3.75
20.25 inches.				

TEMPERATURE OF FEED WATER.

Dec. 1.	Dec. 2.	Average.
10:30 A. M.	10:30 A. M.	for 24 hours (49 readings).
186.0	197.0	193.75

During the capacity trial the coal was weighed in uniform charges of 275 pounds by an officer of the water department, upon a new sealed scale placed in the boiler-room, and charged to the furnace in which it was finally burned.

For this trial furnaces and boilers No. 1. No. 2, No. 3 and No. 4 were used.

From previous experiments with the plant it was found that under the customary conditions of work the consumption of coal was about 1100 pounds per hour, which divided between four furnaces made the charge to a furnace for one hour consumption 275 pounds.

The firings were fixed at regular intervals of 15 minutes, in uniform rotation, as per the following extract from the coal weigher's records:

Date, Dec. 1st, 1885,—A. M.				
Time.	Furnace 1.	Furnace 2.	Furnace 3.	Furnace 4
10:30... ..				275
:45... ..			275	
12:00... ..		275		
:15... ..	275			
:30... ..				275
:45... ..			275	
1:00... ..		275		
:15... ..	275			
:30... ..				275

The furnaces had been fired in the following order previous to commencement of trial:

No. 1, 15 minutes before; No. 2, 30 minutes before; No. 3, 45 minutes before; No. 4, one hour.

This order of consumption was observed throughout the trial, excepting at 4 o'clock A. M. Dec. 2d, an extra charge of 275 pounds was delivered to No. 1 furnace, and at 4:15 A. M., or a quarter hour

later, it took its regular charge of 275 pounds; again at 7:50 A. M., same date, this furnace (No. 1) required an extra charge of 275 pounds in addition to its regular charge at 7:15 A. M.; and at 10:08 A. M. a charge of 275 pounds was equally divided between furnaces No. 3 and No. 4, making total consumption of coal:

Regular charges, 96, of 275 pounds.....	26,400
Extra charges, 3, of 275 pounds.....	825
Total.....	27,225

The fires were cleaned in the following order:

Furnace No. 1.	Furnace No. 2.	Furnace No. 3.	Furnace No. 4.
Dec. 1st— 6:18 P. M.	6:03 P. M.	8:48 P. M.	8:33 P. M.
Dec. 2d—12:18 A. M.	1:03 A. M.	12:48 A. M.	1:33 A. M.
" " 7:50 A. M.	8:00 A. M.	8:48 A. M.	7:33 A. M.

Ash, clinker and unburnt coal filtered through the grates were weighed back as follows:

At 1:15 A. M. December 2d.....	1264 pounds.
At 7:43 A. M. December 2d.....	512 pounds.
At 8:05 A. M. December 2d.....	905 pounds.
Total....	2691 pounds

Percentage of non-combustible for capacity test,

$$\frac{2691 \times 100}{27225} = 9.8843$$

The records of the engine-room consisted of the readings of engine counter, steam gauge in pipe, water gauge connected with the force main every fifteen minutes; temperature of air, injection to condensers, and overflow from hot well and barometer hourly; and the reading of vacuum gauge half-hourly, with the following initial and final readings and averages:

Readings at 10:30 A. M. December 1st:

Steam pres.	Counter.	Water pres.	Vacuum.
80	378,079	80	25.75
Corrected,			
79.923			

Readings at 10:30 A. M. Dec. 2d:

Steam pres.	Counter.	Water pres.	Vacuum.
80	400,078	80	26.25

Corrected,

79.928

Mean for 24 hours:

Steam pres.	Counter.	Water pres.	Vacuum.
97 readings,	97 readings,	97 readings,	49 readings,
78.895	21,999	79.4427	26.091

Corrected,

Revolutions.

78.823

Revolutions in 24 hours.....	21,999.
Revolutions per hour	916.625
Revolutions per minute.....	15.27708

The initial and final readings and means for 24 hours of the hourly readings are given in the following table:

At 10:30 A. M. Dec. 1st.

Air.	Barometer.	Injection.	Hot Well.
66	29.73	44	105

At 10:30 A. M. Dec. 2d:

Air.	Barometer.	Injection.	Hot Well.
70	29.56	44	102

Mean for 24 hours:

Air.	Barometer.	Injection.	Hot Well.
25 readings,	25 readings,	25 readings,	25 readings,
68.083	29.671	43.83	99.875

Recapitulation of averages and totals for boiler and engine-room during 24 hours of capacity trial:

Steam pressure at boilers—No. 1, pounds.....	82.24
No. 2, pounds.....	81.30
No. 3, pounds.....	81.406
No. 4, pounds.....	82.09
Average of all gauges, pounds.....	81.759
Temperature of feed water.....	193.75
Total coal burned, pounds.....	27,225.
Total ash and clinker weighed back, pounds.....	2,691.
Steam pressure at engine, pounds.....	78.823

Vacuum, inches.....	26.091
Water pressure by gauge, pounds ..	79.4427
Temperature of air, Fahr.....	68.083
Temperature of injection water, Fahr ..	43.83
Temperature of overflow from hot well, Fahr.....	99.875
Barometer, inches.....	29.671

The mean difference of center or water pressure gauge and surface of water in pump-well from random readings of the float gauge, during the capacity trial, was 24.5 feet=10.652 pounds; and total head under which pumps worked, according to requirement of printed specification:

By water pressure gauge, pounds	79.4427
By difference water pressure gauge and surface of water in pump-well, pounds.....	10.6520
By allowance for friction, pounds.....	1.0000
Total head, pounds.....	91.0947

and duty developed during capacity trial:

$$\begin{array}{r}
 \begin{array}{cccc}
 (A) & (S) & (P) & (R)
 \end{array} \\
 100 \times 895.121 \times 3.9831 \times 4 \times 91.0947 \times 21.999 \\
 \hline
 27225 \qquad \qquad \qquad -104,976,263.01 \\
 (C)
 \end{array}$$

foot pounds.

During the latter part of the 24-hour capacity trial the contractor decided to use but three boilers for the trial for duty, and at 10:30 A. M. Dec. 2d, No. 1 boiler was cut off by closing the steam valve, feed cock and damper.

Under the printed specification I am of the opinion that the contractor could have selected any well-known anthracite coal for the purpose of his duty trials, and as there are several brands the combustible of which is considerably higher than that actually burned during the trial, he might have selected one of these and improved his duty accordingly.

The use of the ordinary stock coal commonly burned at the pump-house shows great faith upon the part of the contractor in the abil-

ity of his machinery to comply with the guarantees of the contract, the conditions of which compared with most trials for high duty would be regarded as very unfavorable.

There are several brands of anthracite, the efficiency of which, when properly burned under steam boilers, is 94 to 95 per cent of the weight of the coal, and had the contractor required coal of this kind his duty would have been increased in the ratio of 95 or 94 to 90.1157, or the duty for capacity trial would have been

$$\frac{104,976,263.01 \times 94}{90.1157} = 109,501,104.92$$

foot pounds per 100 pounds of coal.

During the extra capacity trial, which was made as a test of the possible speed of engine in case of emergency, the steam and water pressure gauges and engine counter were read every five minutes, with the following averages:

Steam pressure at engine, corrected, pounds	83.086
Water pressure, pounds	65.5
Revolutions for one hour	1080.
Revolutions per minute	18.

DUTY TRIAL.

The final readings at the different stations for the capacity trial under the requirements of the printed specification, became the initial readings for the 48-hour duty trial, and were as follows, for beginning and ending of trial and as an average for whole trial of 48 hours duration:

Stations.	Dec. 2.	Dec. 4.	Average for 48 hours.
	10:30 A. M.	10:30 A. M.	
Steam pressure at boilers—No. 2.....	82.5	83.5	82.817
No. 3.....	82.0	84.0	83.651
No. 4.....	83.0	84.0	83.286
Water level in boilers—No. 2.....	6.	6.25	
No. 3.....	4.75	5.5	
No. 4.....	3.75	4.75	
Temp. of feed water to boilers.....	197.0	178.	186.661
Engine counter.....	400.078	443.045	42.967
Steam pressure at engine.....	79.928	81.928	80.204
Vacuum.....	26.25	26.00	25.975
Water pressure.....	80.00	79.00	79.70
Difference levels of water pres. gauge and surface of water in pump-well.....	24.475	24.425 ft.	23.702
Temp. air engine-room.....	74.0	73.0	70.177
Temp. injection water.....	44.0	42.0	43.437
Temp. overflow from hot well.....	99.0	92.0	92.760
Barometer.....	29.56	29.19	29.149

The coal was burned during the 48 hours of contract duty trial and during the extra hour of trial (added to avoid a possible reduction of the fires at end of 48 hours) in the same manner as for the previous 24 hours of capacity trial, in uniform charges of 275 pounds, and firing the furnaces respectively at intervals of 15 minutes.

For the 48-49 hours of duty trial furnaces No. 2, No. 3 and No. 4 were used, burning the same coal per hour on three grates as was previously burned on four grates during the capacity trial.

The four furnaces in use for the capacity trial represented an aggregate area of grate surface of 136 sq. feet, and the coal burned per hour 1100 pounds, and the rate of consumption per sq. foot of grate surface

$$\frac{1100}{136} = 8.09 \text{ pounds per hour.}$$

The three furnaces in use for the duty trial represented an aggregate area of grate surface of 102 sq. feet, and the coal burned per hour for 48 hours 1079.333 pounds, and the rate of consumption per sq. foot of grate surface

$$\frac{1077.333}{102} = 10.562$$

pounds per hour.

For the 49 hours of duty trial the coal was burned on same grate surface as for 48 hours previous, at the rate of 1079.755 pounds per hour, or $\frac{1079.755}{102} = 10.586$ pounds per sq. foot of grate.

During the 48 hours of duty trial there was weighed up and charged 275 pounds of coal for every 15 minutes interval of the time, each one of the three furnaces used receiving a charge every 45 minutes.

From the charges, at the discretion of the contractor, small quantities were thrown back into a space allotted for the purpose, to be drawn upon in the event of the steam pressure going down during the operation of cleaning fires.

Portions of this coal were so used at different times and the remainder was weighed back and deducted from gross coal charged up to 10:30 A. M. Dec. 4th. For the last hour of trial 1100 pounds were used. The work of the machinery for this hour was not a part of the duty trial required under the printed specification.

The duty for 48 hours of duty trial developed by the formula of the printed specification is given in the preliminary report as 107,638,148.482 foot pounds per 100 pounds of coal burned under the boilers.

The duty for the entire 49 hours of trial is deduced from the following data:

Engine counter at 10:30 A. M. Dec. 2d.....	400.078.
Engine counter at 11:30 A. M. Dec. 4th	443.936.
Revolutions for 49 hours.....	43.858.
Head pumped against, by water pressure gauge, mean of 197 readings	79.684
Difference center of water pressure gauge and surface of water in pump-well, mean of 50 readings, 23.7199 feet.....	10.313
Contract allowance for friction of water passages of pumps.....	1.000
Total head, pounds.....	90.997

The coal burned during 49 hours was 196 charges of 275 pounds...	53,900.
Less weighed back at 10:30 A. M. Dec. 4th.....	992.
Net coal consumed, pounds.....	52,908.
Mean area of both plungers, sq. inches.....	895.121
Mean stroke of both plungers, feet.....	3.9831

$$\frac{895.121 \times 3.9831 \times 4 \times 43858 \times 90.999}{529.08} = 107,576,522.27$$

foot pounds per hundred pounds of coal burned.

It is elsewhere shown in this report that the coal burned during the 48-49 hours of duty trial contained 10.367 per cent. of non-combustible, and that this coal was from the stock in the coal-houses of the pumping station at time of trial; that it was the coal furnished the Water Department by the coal dealers under their yearly contract.

In addition to which it was taken as it came, without attempt to improve its quality by culling out inferior specimens, dirt or stone.

Under the printed specification I am of the opinion that the contractor could have demanded any one of several well-known brands of anthracite coal, which from many tests of their quality have shown an efficiency of combustible of 94 to 95 per cent. of the original weights, and improved his duty accordingly.

Estimating the duty with coal showing not more than 6 per cent. of non-combustible, we have:

$$\frac{107,638,148.482 \times 94}{89.633} = 112,882,375.43$$

foot pounds per 100 pounds of coal.

It has been customary of late years to assume good boiler performance, with good coal and skilled fireman, at an evaporation of ten pounds of steam per pound of coal from temperature of feed water, and I have made several trials of steam boilers with anthracite and bituminous coal, with temperatures of feed water at 180 Fahr., or more, and in one instance with a temperature of feed water of 107 Fahr., and obtained over ten pounds net steam per pound of coal burned.

In several modern instances of contracts for pumping engines, where the construction of boilers was not a part of the contract for engine, or where new engines for old works having sufficient boiler capacity have been contracted for, the guaranteed duty has been based upon an evaporation by the boilers of ten pounds net steam per pound of coal, or the duty instead of being so many foot pounds per hundred pounds of coal, is stated as so many foot pounds per 1000 pounds of steam delivered to the engine.

Your previous contract with Henry R. Worthington for the 15,000,000 gallon, compound, direct-acting and duplex-pumping engine, the contract trials of which I had the honor to make in July, 1882, contained a guarantee of 70,000,000 foot pounds duty per 100 pounds of coal burned upon an evaporation by the boilers of ten pounds of steam per pound of coal.

The contract of E. P. Allis & Co., Milwaukee, with the City of Allegheny, Pa., contained a guarantee of 95,000,000 foot pounds duty per 100 pounds of coal burned upon an evaporation by the boilers of ten pounds of steam per pound of coal.

The contract of E. P. Allis & Co., Milwaukee, with the City of Decatur, Ill., contained a guarantee of 80,000,000 foot pounds duty per 100 pounds of coal burned upon an evaporation by the boilers of ten pounds of steam per pound of coal.

The contract of Robt. Wetherill & Co., Chester, Penn., with the City of Philadelphia, contains a guarantee of 95,000,000 foot pounds duty per 100 pounds of coal burned with an evaporation by the boilers of ten pounds of steam per pound of coal.

The contract of Robt. Wetherill & Co., Chester, Penn., with the City of Cincinnati contains a guarantee of 90,000,000 foot pounds duty upon actual delivery of water into Eden reservoir per 100 pounds of coal burned upon an evaporation by the boilers of ten pounds of steam per pound of coal.

In the recent trials of the engine constructed by E. P. Allis & Co., for the Hannibal, Mo., Water Company, the duty per 100 pounds of

coal is based upon an evaporation by the boilers of ten pounds of steam per pound of coal.

Assuming the contract for this engine contained a guarantee of duty upon an evaporation by the boilers of ten pounds of steam to one of coal burned, then we should have had a much better duty of the engine per se.

The duty of the plant per hundred pounds of coal burned, in the several trials, for capacity, duty and for performance of boilers, other conditions alike, will vary as the economy of boilers, or as the weight of steam from temperature of feed water per unit of fuel.

The duty upon the actual consumption of coal during the test of boilers was 110,275,188.85 foot pounds, with an evaporation from temperature of feed water of 8.7584 pounds of steam per pound of coal. Comparing this duty with the duty obtained during the 48 hours of duty trial, it is fair to infer the evaporation per unit of feed from temperature of feed water to have been less for the duty trial and less in proportion of the "duties" of the two trials.

Upon this assumption the steam per pound of coal from temperature of feed for the duty trial was

$$\frac{107,638,148.5 \times 8.7548}{110,275,188.85} = 8.549$$

pounds; and duty of engine or plant upon an evaporation by the boilers of ten pounds of steam per pound of coal would have been

$$\frac{107,638,148.5 \times 10}{8.549} = 125,907,297$$

foot pounds.

As an evidence of the quality of the engine considered independently of the boilers which you have purchased, I have brought the duty of it in comparison with the duties of several other celebrated pumping engines upon a uniform basis of ten pounds of steam per pound of coal.

ENGINE.

DUTY.

Gaskill, compound condensing, rotative beam engine, double-acting plunger-pumps, cylinders and heads steam-jacketed, capacity in 24 hours 15,000,000 gallons.

Buffalo, N. Y., Dec. 2-4, 1885.

Test 48 hours duration..... 125,907,297.

ENGINE.

DUTY.

Worthington, compound condensing, duplex direct-acting engine, double-acting plunger-pumps, L. P cylinders and heads steam-jacketed, capacity in 24 hours 15,000,000 gallons.

Buffalo, N. Y., July 3-4, 1882.

Test of 20 hours duration..... 67,812,170.

The above engines are each of 15,000,000 gallons daily capacity and stand side by side in the same pump-house, pumping in the same service.

Reynolds, 2 engines, compound condensing, crank and fly-wheel, single-acting plunger-pumps, cylinders steam jacketed, capacity (each engine) in 24 hours 6,000,000 gallons.

Allegheny, Pa., Aug. 30th, Sept. 4th, 1884.

Test of 24 hours duration—No. 1..... 106,368,339.

Test of 24 hours duration—No. 2 .. 101,619,143.

Test of 6 hours duration—No. 2..... 107,009,618.

Leavitt, compound condensing, rotative beam engine, bucket and plunger-pumps, cylinders and heads steam jacketed, capacity in 24 hours 5,000,000 gallons.

Lyon, Mass., Dec. 10-12, 1873.

Test of 52 hours duration.... 121,153,693.

Leavitt (2), compound condensing, rotative beam engines, bucket and plunger-pumps, cylinders and heads steam jacketed, capacity in 24 hours (each engine) 5,000,000 gallons.

Lawrence, Mass., May 2-4, 1876.

Test of 57 hours duration..... 115,748,467.

Gaskill, compound condensing, rotative beam engine, double acting plunger-pumps, cylinders and heads steam jacketed, capacity in 24 hours 4,000,000 gallons.

Saratoga, N. Y., Nov. 1-2, 1882.

Test of 20 hours duration..... 107,967,037.

Hamilton, compound condensing, rotative beam engine, Simpsons style, bucket and plunger-pumps, unjacketed cylinders, capacity in 24 hours, 8,700,000 gallons.

Milwaukee, May 19-21, 1875.

Test of 48 hours duration..... 81,382,952.6

Quintard, 2 engines, compound condensing, rotative beam, Simpsons style, bucket and plunger-pumps, cylinders unjacketed but provided with air spaces, capacity each engine in 24 hours 16,000,000 gallons.

Chicago, April 18-22, 1876.

Test of 48 hours duration 89,498,058.

Test of 48 hours duration..... 85,605,774.

The engines above enumerated, with the exception of the 15,000,000 gallon Worthington in your house, are all compound condensing, crank and flywheel engines, and represent the highest results with pumping machinery in point of economy, and with the same exception are all of modern design from the hands of eminent engineers.

From a comparison of the steam and water diagrams of "B" half of engine from 10:00 A. M. Dec. 3, to 7:00 P.M., same date, it appears that of the total power developed in the steam cylinders, 93.2 per cent. was utilized in the work of the pumps; and a similar comparison of the steam and water diagrams of "A" half of engine, from 8:00 P. M. Dec. 3d, to 10:00 A. M. Dec. 4th, shows an efficiency for the pumps of 97.7 per cent. of total work, or average useful efficiency of engine 95.4 per cent.

In the following table are given the principal results from measurements of the steam diagrams:

Average pressure in steam pipe, pounds.....	80.204	
Average vacuum, inches.....	29.149	
Average vacuum, pounds.....	14.309	
	"A"	"B"
Initial pressure H. P. cylinder.....	79.505	80.179
Cut-off in decimal of stroke, actual, H. P. cylinder....	0.3531	0.3897
Terminal pressure L. P. cylinder, absolute ..	8.421	8.52
Counter pressure at mid-stroke, L. P. cylinder, absolute....	2.238	2.372
Expansion by volumes.....	11.437	10.36
Expansion by pressure.....	11.6597	11.4254

ECONOMY OF BOILERS.

Subsequent to the trial of engine for duty the boilers were separately tested for economy during a period of 10 hours, with the general conditions of work as nearly like the duty trial as it was possible to have them.

The data of the engine-room for this trial was limited to the readings required to estimate the duty of the plant, in addition to a test of the quantity of steam expanded in maintaining the jackets of "B" engine.

The coal was weighed to the boilers in charges of 275 pounds, and the furnaces fired at regular intervals of 15 minutes, as in the duty trial.

During the latter half of boiler trial it was apparent that the coal was being supplied to the furnaces at a greater rate than was required to maintain the steam pressure, and charges were reduced first to 265 pounds each, and finally to 260 pounds each, to avoid producing better fires at ending than was had at beginning of trial.

The coal was burned at the rate of four charges an hour, beginning at 11:15 A. M., Dec. 7th, with the first charge to No. 2 furnace, the second charge at 11:30 A. M. to No. 3 furnace, the third charge at 11:45 A. M. to No. 4 furnace, and the fourth charge at 12:00 M. to No. 1 furnace, and so on for entire trial.

There was consumed in ten hours forty charges of coal as follows:

31 charges of 275 pounds.....	8,525
2 charges of, 265 pounds	530
7 charges of 260 pounds	1,820
Total coal.....	10,875
Less accumulations of coal from the several charges during trial weighed back at 9:15 P. M.....	503
Net coal burned.....	10,372

The fires were carefully cleaned at 11:00 A. M. and at 9:00 P. M., and ash and clinker returned at end of trial 1070 pounds, or

$$\frac{1070}{10372} \times 100 = 10.3162$$

per cent. of original weight of coal shown as non-combustible.

The water to boilers was weighed in net charges of nominally 1900 pounds to each in a cask mounted on a large platform scale, and drawn into a supplemental tank connected with the feed pumps.

In addition to the water thus weighed to boilers, there was a quantity of condensation represented by the drainage from the jackets of "A" engine, which was trapped directly to the feed pumps and could not be measured.

During the test for boiler efficiency (as already mentioned) the drainage from jackets of "B" engine was caught and weighed for entire time, and upon the assumption that the steam expended in maintaining the jackets of "A" engine was equal to the drainage caught and weighed from jackets of "B" engine, then the quantity of water weighed in the weighing cask added to the drainage from jackets of engine "B" represented the total delivery of water to the boilers.

There was weighed and delivered to boilers 48 charges of water, as follows:

34 charges of 1900 pounds	64,600
3 charges of 1905 pounds	5,715
2 charges of 1903 pounds	3,806
1 charge of 1955 pounds.	
1 charge of 1916 pounds.	
1 charge of 1936 pounds.	
1 charge of 1902 pounds.	
1 charge of 1908 pounds.	
1 charge of 1940 pounds.	
1 charge of 1964 pounds.	
1 charge of 1909 pounds.	
1 charge of 1130 pounds.	
.....	16,559
Total water from weighing cask.....	90,680

From 11:15 A. M. to 9:15 P. M., Dec. 7th, there was caught and weighed from jackets of "B" engine 5271 pounds of condensation, and total water to boilers:

From weighing tank	90,680.
From jackets "A".....	5,271.
	<hr/>
Total water, pounds.....	95,951.
Less waste from relief valve on feed pipe, which was caught in casks and measured, pounds.....	1,262.8
	<hr/>
Net water to boilers.....	94,688.2

And apparent evaporation per pound of coal,

94688.2

10372

—9.1292 pounds

From 39 calorimeter observations the following averages are obtained:

Weight of water heated, pounds.....	200.
Weight of steam condensed, pounds.....	10.705
Initial temperature, as read.....	44.051
Initial temperature, as corrected.....	44.0513
Final temperature, as read.....	101.512
Final temperature, as corrected.....	101.6338
Elevation of heat of water by condensation of steam heat, units.....	57.5828
Thermal value of the steam, per pound.....	1177.4454
Thermal value of the steam at observed pressure, 83.0.....	1213.33
Difference	35.8846
Latent heat of steam at observed pressure.....	883.8
Percentage of water entrained in the steam.....	4.06
Efficiency of the steam... ..	0.9704

From the calorimeter data the net steam per pound of coal from temperature of feed water to boilers is deduced as

9.1292

×

0.9594

=

8.7584 pounds.

The mean of 41 readings for temperature of feed water to boilers is 147.45, and corrected temperatures:

[(147.45—39.1)²×

0.000000309]

+

1

×

147.45

=

147.985;

and heat derived from the fuel burned under the boilers, per pound of steam,

$$1213.22 - 147.985 = 1065.346 \text{ thermal units;}$$

and steam per pound of coal, from and at 212 Fahr.:

$$\frac{8.7584 \times 1065.346}{965.7} = 9.6624 \text{ pounds;}$$

and steam per pound of combustible from and at 212:

$$\frac{9.6524}{0.8968} = 10.774 \text{ pounds.}$$

The general conditions under which the boilers worked were as follows:

Steam pressure, mean of 21 readings:

No. 2 boiler.....	82,875 pounds.
No. 3 boiler.....	83,775 pounds.
No. 4 boiler.....	82,350 pounds.
Average.....	83,002 pounds.
Temperature of feed water.....	147.45
Temperature of air, boiler-room.....	73.80

Water levels at 11:15 A. M., Dec. 7th:

No. 2 boiler.....	5.25 inches.
No. 3 boiler.....	4.25 inches.
No. 4 boiler.....	4.50 inches.
Total	14.00 inches.

Water levels at 9:15 P. M. Dec. 7th:

Boiler—No. 2.....	4.75 inches.
No. 3.....	5.25 inches.
No. 4... ..	4.75 inches.
Total.....	14.75 inches.

Excess of water in boilers at end of trial, in relation to total water charged, about one-third of one per cent.

The water in the boilers at end of trial in excess of the levels at commencement has not been deducted from the water charged to boilers, owing to its small effect upon the calculated results.

The mean temperature of the water from the weighing cask to the feed pumps was, for whole trial, 81.383 Fahr.

Elevation of temperature of feed water, by drainage from steam jackets, and steam in feed water heater, 66.067 deg. Fahr.

Each side of the engine was furnished with a small tubular feed water heater, through the tubes of which the condensation and steam from the jackets passed before reaching the steam traps.

Through the barrels of the heaters the feed water was pumped to the boilers.

The jacket steam is taken from the bottom of an intercepting receiver 20" diam. x 48" high, placed in the main steam pipe near the engine. This is a cylindrical vessel of cast iron, with flanged nozzles on the opposite sides to connect with corresponding flanges on main steam pipe.

These nozzles are placed out of line with the nozzle next to engine nearest the top of receiver, to prevent the steam from carrying water of condensation or primage over into the cylinders of engine.

By means of the receiver, all water of condensation or primage is intercepted before it reaches the engine, and is drawn through the jackets into the feed water heater, and finally trapped to the feed pumps, from which it is delivered back again to the boilers.

The water caught and weighed from the jackets of "B" engine during trial of Dec. 7th amounted in ten hours to 5271 pounds; assuming the consumption of steam in the jackets of "A" engine to have equaled the consumption in "B" jackets, then total consumption by jackets was 10,542 pounds.

During the same time the total steam delivered to engine was 94686.2 pounds, showing an expenditure of

$$\frac{10542}{94688.2} = 0.1113$$

of total steam in the jackets.

This large consumption of steam is accounted for in the following manner:

The intercepting receiver in the steam pipe, the steam jackets and the feed water heaters are all connected through the steam traps with the feed pumps, and through the pumps and feed pipe with the boilers, so that no loss in economy could occur by reason of an excessive flow of steam through the jackets, all heat beyond that required to properly maintain the jackets being utilized in heating the feed water in the heater, or upon mingling with the feed pumped from the hot wells into the feed pipe.

The construction of the jacket drainage and feed water apparatus is such that a loss by a large flow of steam through the jackets is balanced by a corresponding increase in the temperature of feed water to boilers, less any losses by conduction and radiation through connecting pipes, which, with the excellent methods of protection employed in this instance, must be very trifling, and perhaps considerably less than the loss in economy which might occur with an inadequate supply of steam to the jackets.

The average temperature of drainage from jackets of "B" engine was 197.5 degrees Fahr.

During the trial for economy of boilers, sufficient data was taken in the engine-room from which to estimate the duty for the same time, as follows:

Engine counter read at intervals of 15 minutes.	
Engine counter 11:15 A. M. Dec. 7th.....	494.740.
Engine counter 9:15 P. M. Dec. 7th..	503.619.
Revolutions in 10 hours.....	8.779.
Head pumped against, by pressure gauge, mean of 41 readings, lbs.	79.375
Difference center water pressure gauge and surface of water in pump-	
well { feet ..	25.25
{ pounds.....	10.980
Allowance for frictional resistance, pounds.....	1.000
Total head, pounds	91.855
The average steam pressure in pipe was, pounds..	80.412
The actual coal burned was, pounds.....	10,372.

and duty:

$$100 \times \frac{895.121 \times 3.9831 \times 4 \times 91.355 \times 8.779}{10.372} = 110,275,18.885$$

foot pounds.

The quality of coal burned during all the trials was not of the best, as shown by the large percentage of ash and clinker weighed back at end of capacity trial, at end of duty trial and for ten hours of test of boilers.

During the first 24 hours there was burned 27,225 pounds of coal and weighed back, 2,691 pounds of non-combustible.

During the 49 hours of duty trial there was burned 52,908 pounds of coal and weighed back 5,485 pounds of non-combustible.

During the test of boilers there was burned 10,372 pounds of coal and weighed back 1,070 pounds of non-combustible.

From which we derive as the percentage of non-combustible for a period of 73 hours, with a consumption of 80,133 pounds of coal:

$$100 \times \frac{8176}{80,133} = 10.203 \text{ per cent. of non-combustible.}$$

For the boiler test the percentage of non-combustible is given as 10.316 per cent, and from the daily experience with this coal at the pump-house, under ordinary conditions of use, the non-combustible is stated by the engineer in charge—who weighs all the coal to the furnaces and all ash and refuse from the fires and ash-pits—to be approximately 10 per cent. of the original weights of coal.

I have appended a series of indicator diagrams from all steam cylinders and pumps taken for different times during the duty trial to illustrate the action of the engine.

The H. P. diagrams were taken with 40 springs, the L. P. diagrams with 10 springs, and the pump diagrams with 40 springs.

In conclusion, I desire to thank the Water Commissioners and the Superintendent of Water Works, Mr. Knapp, for the excellent facilities furnished me for these trials.

Very obediently yours,

JOHN W. HILL.

CINCINNATI, Dec. 24th, 1885.

Back

BUFFALO, N. Y., DEC. 21st, 4.00 P. M.
H. P. CYLINDER "A" ENGINE
Scale 40

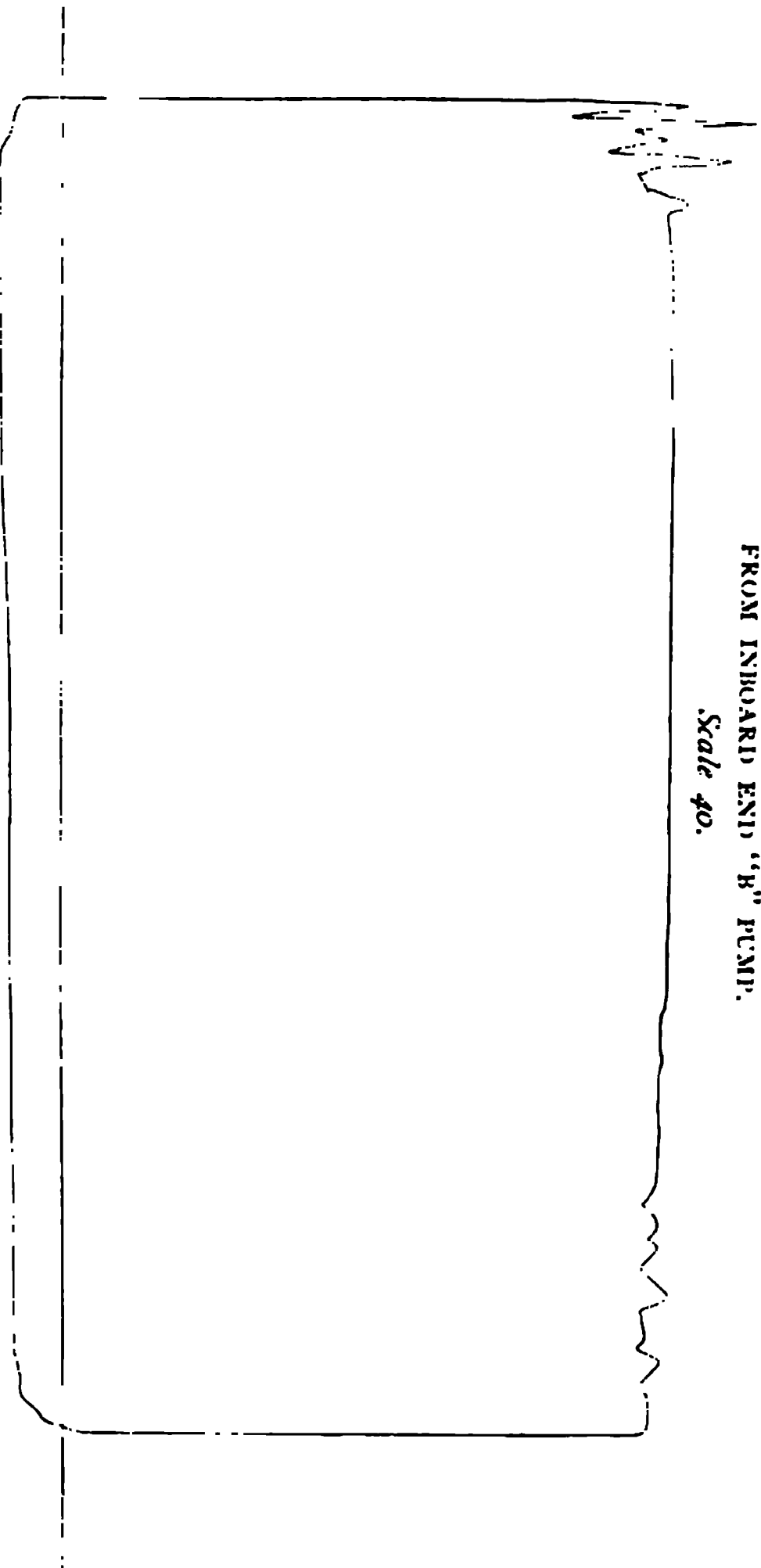
Front

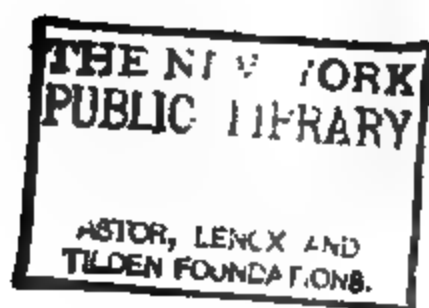




BUFFALO, N. Y., DEC. 3, 1885, 4.00 P. M.
FROM INBOARD END "B" PLMP.

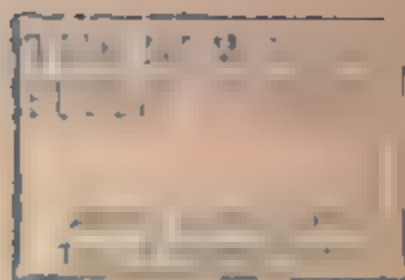
Scale 40.





RECEIVED, N. Y., DEC. 3, 1886, 5 OR P M
FROM OF THORNDEN "A" P M

Seale 40



Eighteenth Annual Report

Buffalo City Water Works

1886.



EIGHTEENTH
ANNUAL REPORT
OF THE
BUFFALO CITY WATER WORKS
BUFFALO, NEW YORK,
FOR
THE YEAR 1886.

BUFFALO:
TIMES PRINTING HOUSE, 191 MAIN STREET.
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JAMES RYAN, Secretary.

S. K. WORTHINGTON.

Superintendent.

LOUIS H. KNAPP.

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JAMES H. LEE, “

Chief Engineer.

PATRICK BRENNAN.

11

Commissioners' Report.

To the Honorable Common Council of the City of Buffalo :

GENTLEMEN—In compliance with title fifteen, section number ten of the City Charter, we have the honor to herewith submit to you our Eighteenth Annual Report of the Buffalo City Water Works :

During the month of February, steps were taken to perfect the Charter of the city pertaining to the Water Department. On February 15th, we communicated with your Honorable Body, setting forth the defects of the present Charter. The subject matter receiving prompt attention by your Honorable Body, and through your hearty co-operation, an amendment was prepared and forwarded to our representatives in Albany, which was passed by the Legislature. The Charter as now is a great improvement, and will enable the Department to so conduct the affairs as will be for the best interests of the Department and its water consumers.

The means taken to prevent the closing of our Inlet Pier with ice has proven a success.

The Works, through all its departments, are in good repair.

The total expenditures of the Department for the year, apart from making provision for payment of bonds falling due, were :

Interest on Bonds...	\$176,366 74
Maintenance and repairs....	95,031 04
Improvements and extensions.....	258,955 17
Payment of new Gaskill engine, boilers and trial tests.	83,538 40

There was added to the year's estimate by your Honorable Body, \$76,700 to lay mains in the following streets to be paved with asphalt, or where the revenue to be derived did not warrant the expenditure from the Department's revenue :

Bouck avenue.
 East street.
 Eagle street.
 Parish Tract Extensions.
 Jefferson street.
 Broadway.

All the work was done, the cost of which was kept under the amount appropriated.

REVENUE

The total amount received by the Department for year ending December 31, 1886, was	\$477,209 57
Increase over previous year.....	32,784 87

While the revenue is yearly increased about \$20,000 by the collection of frontage, and is the means of assessing consumers of water from the various free hydrants throughout the city, it is, at the same time, a source of petty annoyance to the Department and consumers, which we would seek to avoid, and

believing the main object sought to be obtained by its enforcement has been accomplished, we are of the opinion that the same can be dispensed with for the time being, and do so recommend to your Honorable Body.

WATER DEBT.

The funded debt of the Water Department was reduced \$50,000 during the year. Of the 7 per cent. bonds that fell due on October 1st, one hundred thousand dollars were refunded at a lower rate of interest, 3½ per cent., and sold at a premium of \$3,760.

There will become due during the year \$150,000 of 7 per cent. bonds. We would recommend that they be refunded at a lower rate of interest.

WATER MAINS.

There was laid during the year 22 miles, 2,768 feet of water pipe of various sizes, as follows:

4-inch.....	4,554 feet.
6-inch.....	73,861 feet.
10-inch	6,834 feet.
12-inch	9,126 feet.
16-inch.....	17,300 feet.
20-inch.....	4,906 feet.
24-inch.....	2,011 feet.
36-inch.....	336 feet.

This gives a total of 213 miles, 1,218 feet in the city on January 1, 1887.

With the increase of mileage of pipe in the city, and the consumption of water by new consumers on new mains, the total pumpage for the year was over two billion gallons of water, being a daily average of three million gallons.

The demand on the Department for extension of mains has been unprecedented. The closing of the public wells by order of the Board of Health, and the rapid settlement in the outskirts of the city, has increased the laying of pipe a yearly requirement.

ALTERATIONS AT LIFTING STATION.

There was expended \$4,000 in making repairs to Worthington Engine No. 1. She was thoroughly overhauled, and is now practically as good as new.

A new boiler-house was erected at the south end of present buildings at an expense of \$3,744.06.

All the low service Marine boilers were removed from the coal-house and placed in the new Boiler-House.

The placing of these boilers in a separate building, as provided, renders accidents to engines less liable in case of boiler explosion.

The Station and grounds are now illuminated by electricity, through a plant purchased from the United States Electric Light Company, at a cost of \$2,500. This will be a large saving in expense for lighting over the old method.

EXTRA HIGH SERVICE

The supply to the northerly part of the city has been strengthened and improved, by completing a line of 16-inch main from the Upper Pumping House through Front avenue and Jersey street, to connect with the 12-inch in North street, the Holly engines being used to supply this territory. This takes some twelve miles of mains from the service as established, thereby improving the same as well.

For a detailed statement of the condition of the Works, the finances, construction, maintenance, etc., we refer you to the reports herewith of the officers of the respective departments.

Respectfully submitted,

L. P. REICHERT,

JAMES RYAN,

S. K. WORTHINGTON,

Water Commissioners.



REPORT
OF THE
SUPERINTENDENT
FOR
1886.

BUFFALO CITY WATER WORKS.

SUPERINTENDENT'S OFFICE.

BUFFALO, January 1, 1887.

*To Louis P. Reichert, James Ryan and S. K. Worthington,
Water Commissioners :*

GENTLEMEN — Herewith is presented a report showing the operations of the Department, and the detailed statement of the same for the year 1886:

LOWER PUMPING STATION.

Worthington Engine No. 1 has been thoroughly repaired, and new foundations placed under it. This engine has run continually since it was first started, December 12, 1872, and the repairs made upon it were but slight from year to year. The original foundations were imperfectly constructed, and most of the outlay this year was owing to this defect. The Marine boilers have been moved into the new South Boiler-House, constructed during the year, and all of them (5) thoroughly repaired. An electric light plant was also purchased, and is now used for lighting both stations and grounds.

UPPER PUMPING STATION

The change suggested in the last report was made, and the engines are now supplying that part of the city above the contour line of 80.

DISTRIBUTION.

There was laid 22 miles and 2,768 feet of pipe of various sizes, at a cost of \$191,563.08, making the total amount of pipe 213 miles and 1,218 feet.

A large proportion of this is 6-inch pipe. In the matter of pipes for fire protection, it is all-important that there should be a liberal supply of water. When it is wanted for fire purposes, there cannot be too much of it. In the future, it would be advisable to lay more 8-inch and less of 6-inch pipe.

In the extension of mains, with but few exceptions where the streets are paved, the Department should see that the water pipe is laid in advance of the pavement. The city is better prepared now to lay one line of pipe than it will be in two or three years to lay two lines, one on each side of the street.

There was placed in the mains 3,703 additional taps, making the total number 26,438.

HYDRANTS.

There were 180 hydrants placed on new pipes, making the total number in use for fire purposes 1,963. Wherever practicable, they are provided with a 4-inch vitrified tile drain. The

twelve experimental hydrants mentioned in the last report effectually prevent them from freezing. The care and maintenance of hydrants during the severe winter weather, to insure them from being frozen, is the same as last winter. The dividing of the city into five districts, each in charge of a foreman and six men, and then careful and frequent inspection, is the only safeguard against frozen and disabled hydrants.

VALVES.

There were placed 327 valves in the new mains.

METERS.

There are 97 meters on large supply, and 29 hydraulic elevators. The amount of water registered by them was 1,459,522,832 gallons, the amount received for it being \$46,412.01. The expense of maintenance was \$1,182.91.

CONSUMPTION.

The average daily consumption was 33,068,172, being 147 gallons per head of population.

INLET PIER AND TUNNEL.

The shaft at the Inlet Pier from the bottom of the river to the top of the tunnel should be made the full size of the shaft through the masonry, namely six feet in diameter. The iron gate on the American side should be removed, and the house and iron-work painted. The two bulkheads in the tunnel should be removed and all material removed from the bottom

EIGHTEENTH ANNUAL REPORT.

shaft, two iron gates and frames in the shore shaft, an extension to the pump wells. When this work is done the new tunnel will be increased to more than double its capacity.

ENGINES.

In March last, I recommended the purchase of an additional engine for the high service. Our total daily capacity is fifty-five million gallons, and we have used over fifty-four million, leaving nothing in reserve for accidents. We require, as soon as they can be procured, two additional engines, one for the high service and one for the low service, with the necessary boilers, chimneys, well-gates and pipe for the same, and a new pumping main from the house to the city.

RECORDED

To supply the district east of Jefferson street, a reservoir on the Dodge Farm is an absolute necessity, and needs your serious consideration. When commenced, it will take three years to complete the same.

LOUIS H. KNAPP,

Superintendent.

REPORT
OF THE
REGISTRAR
FOR
1886.

REGISTRAR'S OFFICE.

BUFFALO, January 1, 1887.

Louis P. Reichert, James Ryan, S. K. Worthington, Water Commissioners :

GENTLEMEN—In compliance with the requirements of your Honorable Body, I have the honor to herewith submit my report for the year ending December 31, 1886.

The total receipts and disbursements of the department for the year were as follows :

RECEIPTS.

Cash on hand January 1, 1886,		\$83,525.24
Cash receipts for year....	\$372,772.04	
Frontage tax.....	\$105,008.82	
Addition to frontage tax.....	1,301.37	
	<hr/>	
	106,310.19	
Less amount returned by Council.....	1,872.66	104,437.53
	<hr/>	<hr/>
		477,209.57
Appropriated from the General Fund to do special work ordered by Council...		76,700.00
		<hr/>
		\$637,434.81

DISBURSEMENTS.

Interest on Water Bonds	\$176,366.74	
Maintenance and Repairs	95,031.04	
Improvements and Extensions	258,955.17	
askill Engine and Testing.	83,538.40	
Cash, balance on hand January 1, 1887.	23,543.46	\$637,434.81

REVENUE.

The total revenue of the department for the year was	\$477,209.57
This is an increase over the previous year of	32,784.87

The following itemized statement shows source of revenue, viz.:

Water, for City purposes	\$100,000.00
From Domestic Consumers and Manuf'rs not metered	209,169.33
“ Flushing Sewers	185.56
“ Street Sprinkling	1,568.95
“ Circuses	31.00
“ New Boxes.	122.75
“ Corporation Cocks	7,231.00
“ Turn-on Fees.	147.00
“ Rent of Dodge Farm	655.00
“ Builders	1,497.36
“ Street Paving	431.90
“ Manufacturers and Railroads, metered	46,412.01

FROM SALE OF OLD MATERIAL.

Jan. 15, M. Lichtenstein lead skimmings \$	4.65
“ 22, Howard Iron W'ks, old valve	5.00
Feb. 29, A. S. Hetter . manure	6.00
Mar. 16, M. Lichtenstein. 1,952 lbs. scrap	5.98
April 6, Bingham & Taylor, 300,825 lbs. scrap	
gross	1,520.30

THE BUFFALO CITY WATER WORKS.

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April 9, M. Lichtenstein.....	5,020 lbs. scrap.....	\$ 28.10
“ 19, W. C. McDonald.....	old wagon.....	20.00
May 6, John Fisher	125 lbs. of old pipe..	.75
“ 19, Thomas Dark.....	hydrant cap .....	.35
“ 26, M. Lichtenstein.....	880 lbs. lead skim- mings.....	13.20
July 9, M. Lichtenstein.....	3732 lbs. lead skim- mings and scrap....	36.05
Aug. 17, Joseph Irr.....	136 lbs. 12-in. scrap pipe.....	2.75
“ 30, M. Lichtenstein.....	1,718 lbs. skimmings	25.77
Sep. 14, A. S. Hetter... ..	manure	6.50
Oct. 5, M. Lichtenstein.....	2,140 lbs. scrap.....	24.96
“ 16, Bingham & Taylor, 90,090	lbs. scrap.....	577.78
Aug. 7, Fries & Co.....	714 lbs. scrap brass..	64.26
Nov. 3, M. Lichtenstein.....	scrap rope and old barrels.....	112.04
“ 11, M. Lichtenstein.....	4254 lbs. scrap and skimmings.....	85.46
Dec. 8, John Doe.....	28 lbs. scrap brass....	.75
“ 22, Shepard Hardware Co.	special casting.....	3.00
“ 26, Bingham & Taylor, 37,880	lbs. cast scrap	360.94
		————— \$ 2,904.59

LABOR AND SUPPLIES.

Jan. 15, S. S. Jewett & Co., labor and material....	\$ 33.65
“ 18, T. McQuade .....labor and material....	18.61
Feb. 5, C. Klinck.....labor, setting 4-inch meter	52.34
Mar. 13, D., L. & W. R. R. Co.labor, setting 6-inch meter	63.29
April 2, R. Ovens .....making connection ..	3.36
“ 3, Holly M'f'g Co. ....laying 12-inch dis- charge pipe.....	80.21

April 9,	George Hughson	labor, setting meter	\$ 2.47
" 15,	D. W. McConnell	labor and material..	1.70
" 15,	D. W. McConnell	rep'rs to broken pipe	8.94
" 19,	R. W. Bell	making connection	46.15
" 24,	N. Y. C. & H. R. R'd.	repairing leak	10.50
" 29,	C. Weaver	repairs to hydrant, (damage)	5.00
" 30,	John D. Smith	1 1½ - inch Union meter, etc.	30.50
May 8,	R. L. Howard	labor, Trinity Church	38.97
" 8,	Harry Hamlin	repairs, leak	29.00
" 28,	L. H. Knapp	18 hours' labor	2.70
June 7,	Plumb, Burdick & Barnard	repairs Crown meter	6.85
" 16,	Wesp. Lautz Bros. & Co.	cutting off supply	23.50
" 19,	J. A. Roberts	making connection	120.00
" 22,	Rink, Seneca, cor.		
	S. Cedar	setting meter, etc.....	15.00
" 26,	A. P. Wright	repairs to meter re- gister	5.55
July 6,	James Ryan	labor and material	12.50
" 22,	Union Steam'b't Co.	setting hydrant	77.14
" 28,	Park Commiss'ners	setting hydrant	40.95
" 30,	C. Richardson	1½ days' labor	2.03
" 31,	W. Russell	making connection	120.00
Aug. 3,	Pratt & Co.	material, etc	16.06
" 7,	Park Commiss'ners	repairs, etc.	47.15
" 10,	Brush Electric Light Works	setting valve	27.00
" 12,	West'rn Transp. Co.	setting and changing hydrant	86.20
Sept. 2,	Schoellkopf & Sons.	one valve box	6.00
" 7,	Riter Bros.	setting hydrant	46.25
Aug. 21,	John Doe	labor and material	31.20
Sept. 23,	E. R. Jewett	making connection	120.00

Oct. 2, L. H. Knapp.....sundry labor	\$ 3.60	
“ 9, J. Dolan .....repairs, leak.....	3.00	
“ 25, Lehigh V. R. R. Co..laying service pipe...	396.14	
Nov. 8, L. Sh. Elev. Depos..laying pipe.....	400.00	
Dec. 14, Park Commiss'ners.repairs to valve.	8.50	
“ 18, Buffalo School Fur- niture Co.....labor and material....	40.84	
“ 21, Danforth & Clark. labor and material....	32.46	
“ 18, Hingston & Wood.making connection ..	42.18	
“ 24, Howard IronW'rks.putting in branch.....	82.48	
“ 24, Howard IronW'rks.putting in branch.....	34.48	
“ 27, Atlas Refining Co..setting 6-inch Crown meter	98.56	
“ 28, James Ryan.....sundry labor	19.93	
“ 30, George Martin.....repairs to leak.....	1.05	
“ 31, D. McConnell.....repairs to pipe	1.75	
“ 31, John H. Knepper.labor at Chippewa market	19.85	
	<hr/>	\$ 2,415.59
*Frontage tax.....		104,437.53
		<hr/>
		\$477,209.57

* The amount of frontage tax rebated to January 1, 1887, being \$65,996.16.

EIGHTEENTH ANNUAL REPORT OF

WATER BONDS.

Bonds outstanding for
extension and improvement.

Bonds issued for the purchase, ex-
tension and improvement of
works.

Date of Issue	Amount.	When Due	Date of Issue	Amount.	When Due.
1, 1870	\$100,000	Mar.	1, 1874	\$100,000	Aug. 1, 1905
1, 1870	100,000	June	1, 1874	79,382	Oct. 1, 1908
1, 1870	145,000	Oct.	1, 1875	100,000	Aug. 1, 1909
1, 1871	50,000	Jan.	1, 1876	50,000	Jan. 1, 1896
1, 1871	100,000	Jan.	1, 1876	100,000	July 1, 1896
1, 1871	50,000	Aug.	1, 1878	50,000	Sept. 2, 1898
1, 1871	100,000	Oct.	1, 1879	100,000	April 25, 1898
1, 1872	50,000	April	1, 1880	100,000	April 26, 1899
1, 1872	100,000	July	1, 1880	50,000	July 1, 1904
1, 1872	100,000	Oct.	1, 1880	100,000	Sept. 1, 1904
1, 1872	100,000	Dec.	1, 1880	64,000	Nov. 26, 1897
1, 1872	100,000	Dec.	1, 1881	100,000	April 25, 1900
1, 1873	200,000	Sept.	1, 1884	90,000	April 1, 1901
1, 1874	100,000	April	1, 1885	100,000	July 1, 1905
1, 1874	100,000	July	1, 1886	100,000	Oct. 1, 1903

Total..... \$2,775,382

INTEREST PAID ON WATER BONDS DURING 1886.

January 18th.....	\$ 8,750.00
February 15th.....	13,750.00
March 22d.....	34,153.37
April 19th.....	1,280.00
May 24th	10,500.00
June 21st.....	19,750.00
July 19th.....	22,500.00
September 20th	34,153.37
October 18th.....	1,280.00
November 22d.....	10,500.00
December 20th.....	19,750.00
	<hr/>
	\$176,366.74

EIGHTEENTH ANNUAL REPORT OF

COST OF WATER WORKS FROM PURCHASE TO DATE.

Original Purchase	\$ 705,000.00
Dodge Farm	100,726.14
Extensions and Improvements	3,795,102.57
Interest on Bonds	2,987,110.97
Maintenance and Repairs	1,415,913.69
On hand January 1, 1887	23,543.46
Total	<u>\$9,027,396.83</u>

RECEIPTS

Water Rates	\$4,360,408.96
Bonds	.. 3,028,382.00
Taxes	... 1,638,605.87
Total	<u>\$9,027,396.83</u>

PRESENT STANDING OF WATER WORKS ACCOUNT.

	Jan. 1, 1886.	Added during the year.	Jan. 1, 1887.
Original Purchase	\$ 705,000.00	. . . . .	\$705 000.00
Real Estate, including Taxes.....	100,726.14	. . . . .	100,726.14
Engines.....	234,456.69	\$ 6 541.89	240,998.58
Holly Pumping House.....	12,092.25	. . . . .	12 092.25
Holly Pumping Machinery.....	39,000.00	2,307.41	41,307.41
New Engine House.....	82 610.32	. . . . .	82 610.32
Gas Well.....	9 406.44	. . . . .	9,406.44
Inlet Tunnel and Pier.....	530,346.56	. . . . .	530 346.56
Main Pipes, Branches, Hydrants, etc.	2 488,442.23	240,704.85	2,729,147.08
Coal and Boiler House and Chimney	26 711.53	. . . . .	26,711.53
Gaskill Engine	11 354.04	83 538.40	94 892.44
Coal Tunnel connecting Upper and } Lower House	3 351.19	. . . . .	3 351.19
New Valve House.....	910.70	. . . . .	910.70
Overhead Crossing... ..	1,447.87	. . . . .	1,447.87
New Boiler House.....	. . . . .	3,744.06	3,744.06
Electric Light Plant.....	. . . . .	2 734.76	2,734.76
Repairs, Boilers and moving same..	. . . . .	2,922.20	2,922.20
Total.	\$4 245,855.96	\$342,493.57	\$4,588,349.53

COMPARATIVE STATEMENT.

Revenue received, coal consumed and water pumped annually for sixteen years.

Year.	Revenue.	Expenses	Coal Consumed Tons.	Water Pumped, Gallons.	Water Pump'd		Pipe		Each Year.	
					Daily, Gallons	Extensions.	Miles	Feet	Miles	Feet
1871 . . .	\$124,865 60	\$77,456 95	3,645	2 775,752 490	7 604 801	284,297 84	67	4 644		
1872 . . .	138 150 00	69 228 74	4,546	3 226,891,140	8 840 797	355 492 46	77	2,921	9	3,557
1873 . . .	168 267 20	77,747 60	4,720	3 329,193 162	9 316,598	308,600 46	81	4,912	4	1,991
1874 . . .	176,219 10	66,218 50	2 852 50	3 040,012 107	5,509,481	307 355 64	86	4,905	4	5,273
1875 . . .	184,516 48	64,862 37	3,422 67	3,828,594,027	10,489 298	159,098 75	91	1,591	4	1,966
1876 . . .	191 335 84	61 474 22	3 357 88	4 020,936,278	11,016,263	106,900,21	92	4,931	1	3 340
1877 . . .	189,296 90	57 553 27	3,249	4 267,218,162	11,691,181	17,014,05	93	2,631		2,980
1878 . . .	200 183 28	55 230 50	3,524 50	4,589,879 986	12,503,078	48 555 32	94	3 376	1	745
1879 . . .	205 415 75	54 497 22	3,979 75	5 291,337 520	14,496,815	11 457 50	97	626	2	2,530
1880 . . .	216,214 37	60 983 67	5,809	5,993,009,343	16,369,802	161,883,89	102	873	5	247
1881 . . .	210,031 46	76,629 09	7,192 80	6,344,182 224	17,394 973	201,487 10	114	4 149	12	3,276
1882 . . .	362 762 07	79,105 90	..	7,076,212 870	19,386 885	160,617 81	131	524	16	1,655
1883 . . .	426,353 57	87,193 53	8 811	8,568,435,200	23 475,192	200,029 90	150	529	18	5,135
1884 . . .	381,581 64	81,078 88	9 128	8 789,971 200	24 082,112	186,623 92	164	2,931	14	2,402
1885 . . .	444 440 77	92 438 30	10 507	10 441,393 340	28,606,557	327,918 82	191	830	27	1,474
1886 . . .	477 209 57	95,031 04	11 280	12,069 882,676	33,108 172	342,493 57	213	1 218	22	388

THE BUFFALO CITY WATER WORKS.

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BALANCE SHEET, BUFFALO CITY WATER WORKS, DEC. 31, 1886.

2.	Buffalo City Water Works Construction	\$ 584,382.00	
3.	Buffalo City Water Works Extension Fund	734,692.34	
4.	Bonds Payable.....		\$2,828,382.00
5.	City Treasurer.....	83,525.24	
6.	Hydrant and Water Fund.....		961,717.58
7.	Buffalo City Water Works Extension Loan.....	2,387,500.00	
16.	Supply Account.....		437,524.61
35.	Store House.....	3,854.50	
60.	Pipe and Specials		4,339.83
80.	Lead.....		2,149.05
102.	General Street Repairs.....	6,856.26	
117.	Labor Trench Account.....	4,987.78	
124.	Meter Repairs.....	1,182.91	
129.	Valve Repairs.....	1,941.54	
139.	Hydrant Repairs.....	12,287.58	
152.	Service Leaks.....	338.83	
157.	Joint Leaks.....	1,992.91	
160.	Repairs, Free Hydrants, etc.....	810.11	
162.	Salaries	12,217.93	
163.	Inspectors	7,913.00	
164.	Tapping.....	2,051.38	
165.	Hostler	1,156.38	
166.	Watchman.....	763.50	
167.	Teamster	1,020.84	
168.	Engineers, Upper Engine House	783.32	
169.	Firemen, Upper Engine House..	960.35	
170.	Labor, Upper Engine House.....	775.75	
171.	Engineers, Lower Engine House	5,374.83	
172.	Firemen, Lower Engine House..	7,019.90	
173.	Labor, Lower Engine House.....	7,889.14	
174.	Reservoir	960.28	

175.	Pipe Inspector	\$ 468.75
176.	New Maps	1,853.94
178.	Louis P. Reichert	1,011.33
179.	James Ryan	1,418.00
180.	S. K. Worthington	1,011.33
181.	Fuel	36,691.86
184.	Printing, Office Expenses and Stationery	2,569.17
186.	Advertising	126.00
187.	Feed	893.53
189.	Horse Shoeing	28 40
190.	Stable Supplies	592.32
192.	Harness Repairs	79 05
193.	Wagon and Sleigh Repairs	438.67
195.	Veterinary	92.00
197.	Wagons and Sleighs Purchased	490.00
198.	Horses Purchased	1,125.00
199.	Repairs, Store House Building	52.35
203.	Repairs, Lower Engine House Building	994.09
206.	Repairs, Low Service Boilers, Lower Engine House	2,922.20
209.	Clerk Pump House	353.00
210.	Repairs, High Service Boilers, Lower Engine House	59.76
212.	Repairs, Engine No. 1, Upper Engine House	10.45
215.	Repairs, Engine No. 2, Upper Engine House	2,307.41
217.	Supplies, Upper Engine House	302.09
221.	Repairs, Over head Bridge, Lower Engine House	24.29
222.	Repairs, Boilers, Upper Engine House	44 23
223.	General Repairs, Machinery Up- per Engine House	110.75

225.	Repairs, Engine No. 1, Lower Engine House.....	\$ 4,288.80	
227.	Repairs, Engine No. 2, Lower Engine House.....	21.11	
229.	Repairs, Engine No. 3, Lower Engine House.....	232.53	
231.	Repairs, Engine No. 4, Lower Engine House.....	326.41	
233.	General Repairs, Machinery Lower Engine House.....	2,134.93	
236.	Supplies, Lower Engine House...	2,239.68	
240.	New Tools, Lower Engine House	14.01	
241.	Repairs, Tools, Lower Engine House	21.50	
250.	New Tools, Store House.....	1,083.15	
255.	Corporation Cocks and Services..	1,811.68	
257.	Repairs, Tools, Store House.....	125.82	
261.	Blacksmith Shop.....	1,215.25	
264.	Inlet Pier.....	663.24.	
276.	City Treasurer.....	372,772.04	
281.	Water Rates.....		309,169.33
285.	Meter Rates.....		46,412.01
289.	Building Rates.....		1,497.36
292.	Corporation Cocks.....		7,231.00
296.	Labor and Supplies.....		2,415.59
299.	Sale of Old Material.....		2,904.59
302.	Rent of Dodge Farm.....		655.00
304.	Street Sprinkling.....		1,568.95
305.	Turn-on Fees		147.00
307.	Flushing Sewers.....		185.56
308.	New Boxes.....		122.75
309.	Circus Rates		31.00
310.	Street Paving.....		431.90
401.	Freight and Express Charges.....	67.86	
401.	Rent of Bell Telephone.....	286.00	
402.	Repairs to Dodge Farm....	33.00	

402.	New Gaskill Engine	\$ 83,011 65
403.	Testing New Gaskill Engine	526.75
403.	Bridge Repairs.	88.21
404.	Bird Island Pier	6.00
404.	Traveling Expenses	83.05
405.	Force Pump, Poor House.	181.00
405.	New Feed Pumps.	175.00
406.	Old Repair Account.	30.00
406.	Repairs, Feed Pumps, Lower Engine House	148.74
407.	River Buoy, Dumping Ground	195.00
407.	New Boulter House	3,744.06
408.	Repaving, 1885	4,499.24
408.	Thirty-six-Inch Force Main	100.30
409.	Electric Light Plant	2,734 76
410.	Surveying Tools.....	319.00
410.	Accident Account	404.50
411.	Smith Street Sewer	1,200.00
411.	Gas Bills.	1,162.35
521.	Bouck avenue, West avenue to Bidwell place	19,245.44
521.	Herkimer street, Ferry to Bouck avenue	22,063.09
553.	Tennessee street, south to Erie Ry	431.26
553.	Fitzgerald street, end of pipe to Sandusky	490.30
554.	Mississippi street, end of pipe to Scott	180.68
554.	Howard street, end of pipe to Stetson	83.03
554.	Illinois street, Scott to Perry.	436.46
555.	Burwell place, Scott to Perry ..	351.78
555.	Smith street, Clinton to Bristol	322.41
555.	Reed street, Sycamore southerly.	1,334.70
556.	Grant street, Ferry to Herkimer.	379.23
556.	North street, Rose to Grape	204.80

521.	Herkimer street, Bouck to Clinton avenue	\$ 9,496.13
523.	Genesee street, Michigan to Oak	1,446.38
523.	Elm street, Clinton to Genesee....	4,952.93
523.	Huron street, Niagara to Morgan	569.99
524.	Fifteenth street, Rhode Island to Utica.....	380.99
524.	Virginia street, Seventh to Niagara	408.19
524.	Fillmore avenue, Peckham to Broadway	4,579.53
525.	Hodge avenue, Delaware to Ashland avenue	77.98
525.	Broadway, Smith to Parkway.....	199.49
526.	Main street connections.....	931.53
526.	Clinton avenue, Herkimer to Richmond	10,643.11
526.	West avenue, Virginia to Jersey	49.07
527.	Engine House, Upper Engine House Lot.....	3,797.57
527.	St. Paul street, Main to Oak.....	54.41
528.	Lewis street, end of pipe, 300 feet northerly.....	451.93
528.	Orlando street, Seneca to L. V. R. R	570.33
528.	Sycamore street, Sherman to Parkway	2,244.12
529.	Virginia street, Main to Franklin	1,045.60
529.	Ellicott street, Goodrich to Best..	766.82
529.	Smith street, Howard to Oneida	466.91
530.	Lovejoy street, Fillmore Parkway to Clark.....	853.51
530.	Smith street, Lovejoy to Peckham	555.42
530.	Elmwood avenue, end of pipe 120 feet northerly	102.22
531.	Coit street, William to Howard...	552.93

531.	Adams street, Clinton to Eagle	\$ 419.44
531.	North Division street, Emslie to Lord	888.50
532.	Townsend street, Lovejoy to William	1,470.58
532.	Oneida street, Central R. R. to Fillmore.	703.58
532.	Herman street, North to Best	566.52
533.	Maurice street, end of pipe to Elk street	949.85
533.	Ludington street, North Ogden to city line	1,946.99
533.	Euclid place, end of pipe to Abbott road	375.21
534.	De Witt street, end of pipe to Bradley	289.40
534.	Glenwood avenue, Purdy to Welker.	484.35
534.	William street, North Ogden to city line	421.30
535.	South Ogden street, William to L. V. R. R.	396.14
535.	Eagle street, Raze to Fillmore avenue	246.46
535.	East street, Farmer to Hertel avenue	1,113.63
536.	Dearborn street, Parish to Hertel avenue	2,530.38
536.	Thompson street, Amherst to Farmer	1,675.06
536.	Gorton street, Amherst to Hertel avenue	2,312.41
537.	Farmer street, Gurnsey to Tonawanda	623.71
537.	Austin street, Niagara to Tonawanda.	3,010.85

537.	Hamilton street, Niagara to East	\$ 457.03
538.	Troupe street, Seneca to Railroad	789.50
538.	Peabody street, Elk to Seneca....	1,462.13
538.	Walter street, Perry to Seneca...	824 25
539.	Fulton street, Smith to Railroad.	1,137.54
539.	Plymouth avenue, end of pipe to Hampshire	370.98
539.	Pennsylvania street, end of pipe to Fourteenth.....	569.36
540.	Northampton street, Michigan to Masten.....	626.62
540.	East Utica street, Dupont to Hauf	355.06
540.	Thomas street, Howard to Wil- liam.....	554.97
541.	North street, Maple to Locust....	478.42
541.	Detroit street, William to Lovejoy	1,348.58
541.	Brayton street, Rhode Island to Massachusetts.....	524.89
542.	Church street, Lower Terrace to Jackson.....	734.86
542.	Edward street, Delaware avenue to Virginia	33.71
542.	Best street, Jefferson to Genesee	757.14
543.	Front avenue, Massachusetts to Jersey	7,478.54
543.	Walden avenue, Genesee to Wil- liamsville road.....	884.76
543.	Massachusetts street.....	1,251.03
544.	Jersey street, Front to Porter avenue.....	4,529.31
544.	Michigan street, Bouck to Dela- ware avenue	413.67
544.	Porter avenue, Jersey to Wads- worth	1,101.75
545.	Coit street, Broadway to Lovejoy	743.81
545.	Main street, North to High.....	1,445.94

545.	Kentucky street, South street 450 feet north	\$ 360.47
546.	Chester street, Ferry 900 feet north	881.23
546.	Chester street	68.37
546.	Mackinaw street, Fitzgerald to Railroad	146.82
547.	Indiana street, Mary to Ohio. ..	397.73
547.	Lovejoy street, Coit to Detroit...	300.57
547.	Eaton street, Masten to Jefferson	1,187.11
548.	Anderson place, Ashland to Elm- wood avenue	499.42
548.	Sherman street, North to Best ..	541.29
548.	Johnson street, North to Best....	545.91
549.	Clinton avenue, West avenue to Niagara	404.95
549.	Arkansas street, West avenue to Herkimer	923.91
549.	Hamilton street, Thompson to Tonawanda.	482.14
550.	Jefferson street, Main to Puffer...	6,888.22
550.	California street, West avenue to Herkimer	948.47
550.	Eagle street, Michigan to Union..	1,485.94
551.	Hertel avenue, Niagara to East..	585.69
551.	Virginia street, Niagara to Pros- pect avenue	312.02
551.	Bryant street, Richmond avenue to Howard	575.61
552.	Alabama street, south to Erie Railway.	422.60
552.	Mechanic street, Lower Terrace to Canal	525.55
552.	Scott street, end of pipe to Bridge	484.88
553.	Kentucky street, South to St. Clair	430.18

556.	Chester street; Ferry to end of pipe.....	\$ 574.65
557.	Genesee street, Niagara to Franklin....	380.86
557.	Ohio street, Louisiana, 125 ft. south	387.26
557	Jersey street, Lake View avenue to Sixth.....	757.65
558.	Norton street, Lewis, 500 feet easterly	502.91
558.	Maryland street, Tenth to West avenue.....	231.96
558.	Ketcham alley, Carlton to High.	361.53
559.	Southampton street, end of pipe to Jefferson	1,306.60
559.	Hoyt street, Bouck ave., southerly.	416.63
559.	Raze street, Clinton to James... ..	288.33
560.	Hoffman alley, Hamilton street, southerly	223.64
560.	Sandusky street, Fitzgerald, 100 ft. westerly.....	125.80
560.	Jerry street, Raze to Fillmore avenue.....	249.95
561.	Montgomery street, Howard to Pink	256.82
561.	James street, Montgomery to Parkway.....	553.56
561.	Carroll street, Hydraulic to Reservation line.....	652.16
562.	Clark street, Lovejoy to Curtis....	917.75
562.	Bristol street, Smith to Raze.....	791.87
562.	Porter street, Hydraulic to Van Rensselaer	425.42
563.	Masten street, Glenwood avenue to Ferry.....	878.95
563.	Utica street, Richmond avenue to Chenango.....	701.82

563	North street, Michigan to Maple	\$ 462.52	
564	Congress street, Clinton to Dela- van avenue	595.37	
564	Alabama street, Perry to Scott .	301.24	
564.	Raze street, Clinton to Bristol	276.38	
565.	Porter street, Van Rensselaer to Heacock	255.90	
565.	Broadway, Fillmore avenue to Williamsville road.	16,736.39	
566.	Jefferson street "connections"	179.57	
566.	Shumway street, Broadway to Peckham	1,371.88	
566.	Carlton street, " valves on High service"	172.40	
567.	Fillmore Parkway cross connec- tions	1,013.12	
201.	Repairs building Upper Engine House	40.00	
412.	Taxes	71.47	
		<hr/>	
		\$4,606,885.11	\$4,606,885.11

TRIAL BALANCE, BUFFALO CITY WATER WORKS, DECEMBER 31, 1886.

2.	Buffalo City Water Works Con- struction	\$ 584,382.00	
3.	Buffalo City Water Works Ex- tension Fund	1,077,185.91	
4.	Bonds Payable.. ..		\$2,778,382.00
5.	City Treasurer.		80,894.07
6.	Hydrant and Water Fund . . .		1,139,791.84
7.	Buffalo City Water Works Exten- sion Loan	2,387,500.00	
10.	Redemption Bonds, Sinking Fund		50,000.00
		<hr/>	
		\$4,049,067.91	\$4,049,067.91

SCHEDULE OF BILLS AND ACCOUNTS

APPROVED DURING THE YEAR 1886 BY THE WATER BOARD AND
PAID BY THE CITY TREASURER.

IMPROVEMENTS AND EXTENSIONS.

1886. Date.	Name.	Description.	Amount.
Jan. 11.	W. C. McDonald.....	Removing earth.....	\$ 200.00
"	Holly Mfg. Co., Lock- port, N. Y.....	Part payment on Gaskell Engine.....	50,000.00
Jan. 25.	G. C. Grimard, Cash'r...	Pay roll, January... ..	1,680.66
Feb. 8.	The National Meter Co., N. Y.....	1-6" Crown meter, etc..	625.00
Feb. 15.	N. Y., L. E. & W. R. R.	Freight	3.72
"	Fries & Co.....	Corporation cocks.....	16.90
"	Pratt & Letchworth... ..	Common axles.....	12.32
"	Cornell Lead Co.	Coil med.....	20.68
"	Goodyear Rubber Co....	Steam hose.....	20.75
"	Reinecke & Zesch... ..	Advertising	14.25
"	The Bell Telephone Co.	Rent	163.50
"	John Mesmer.....	Coach hire... ..	5.00
"	J. N. Matthews.....	Advertising	6.00
"	The Pitts Agricultural Works.....	1 29 in. boiler.....	425.00
"	F. S. Pease.....	Oil casks.....	16.00
"	Joseph Churchyard.....	Labor, overhead bridge	17.41
"	W. H. H. Newman.....	Galvanized Iron	20.91
"	E. H. Butler.....	Advertising	9.00
"	E. H. Butler... ..	Advertising .....	.42
"	Buffalo Demokrat.....	Advertising	7.75
"	J. D. Warren.....	Advertising	9.00
"	C. J. Hamilton.....	Lumber.....	56.31
Feb. 22.	Ulbrich & Kingsley.	Stationery.....	31.50

Feb. 22.	The Courier Co.	Advertising	\$ 6.25
"	T. Cragier	Horses	350.00
"	Scatcherd & Son	Lumber	76.60
"	J. T. Ruckle & Co	Sundries	138.85
"	G. C. Grimard, Cash'r	Pay roll, February	1,615.31
"	G. C. Grimard, Cash'r	Weekly roll.	271.12
"	W. C. McDonald	Removing surplus dirt.	94.00
Mar. 1.	Holly Mfg. Co.	Partial payment on new engine	30,000.00
Mar. 8.	R. Dunbar & Son	winch	40.00
"	Trunk Sewer Commission	Rep. trench over water pipe	45.00
"	C. W. Holloway	Sand	30.00
"	Valentine & Son	Keys	9.80
"	Pratt & Letchworth	Hub-wheels	43.50
"	E. G. Felthousen	Repairing gauge, etc.	14.00
"	C. J. Heinold	Merchandise	11.40
"	C. J. Heinold	Merchandise	3.85
"	Becker & Wickser	Stable supplies	3.00
"	Ulbrich & Kingsley	Merchandise	4.75
"	Eddy Valve Co.	Valves	1,564.75
"	Felthousen & Russell	Sundries	21.89
"	H. H. Baker Co.	Manilla rope, etc.	3.01
"	A. M. Edwards	Use of chronometer	6.00
"	Matthews, Northrup & Co	Printing	38.00
"	Irlbacker & Davis	Sundries	124.64
"	C. J. Hamilton	Lumber	37.76
Mar. 15.	The Courier Co	Ad prop. for cast iron pipe	8.50
"	J. G. Johnson	Sundries	16.37
"	Sidney Shepard & Co	2 10 gal. iron cans	1.88
"	D. A. Bailey	Telephone use, etc	5.45
"	Goodyear Rubber Co	Gasket, etc.	6.96
"	G. C. Grimard, cash'r	Wages, laborers	259.66

THE BUFFALO CITY WATER WORKS.

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Mar. 15.	Howard Iron Works.....	Fire hydrants.....	\$4,508.50
Mar. 22.	Volker & Felthousen		
	Mfg. Co.....	Duplex pumps, etc.....	181.00
"	Bickford & Francis.....	50-inch packing.....	10.00
"	R. G. Drullard	Carting valves.....	3.00
"	Barnes, Hengerer & Co.....	Bags.....	4.80
"	Adams & White.....	Stationery, etc.....	89.27
"	Lesswing & Stines.....	Wagon repairs.....	125.50
"	Walbridge & Co.....	Sundries	67.46
Mar. 29.	Powell & Plimpton.....	Sundries .....	.65
"	Pratt & Letchworth.....	Steel castings....	14.12
"	C. Frank.....	Hammer handles.....	17.00
"	Pratt & Co.....	Sundries	30.63
"	G. C. Grimard, cash'r....	Pay roll, March.....	1,931.32
April 5.	James Boland.....	Sand.....	30.00
"	Buffalo Lubricat. Oil Co.....	Oil.....	5.98
"	Holly Mfg. Co.....	On contract new engine	2,600.00
April 19.	G. C. Grimard.....	Wages, laborers....	67.50
"	James D. Warren.....	Advertising	11.00
"	Goodyear Rubber Co. ...	Sundries.....	20.95
"	The Times Co. (lim.) ..	Advertising ..	6.74
April 26.	Charles Suor	Pine plugs	10.08
"	N. Y. C. & H. R. R. Co.	Watching and repairing tracks	28.90
"	A. R. Ketcham	Valve boxes.....	78.02
"	G. C. Grimard, cash'r....	Wages, laborers ...	1,158.34
"	G. C. Grimard, cash'r....	Wages, month of April	1,770.54
May 3.	Buff. Cast-Iron Pipe Co..	Cast-iron pipe.....	820.43
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe.....	1,437.98
"	Buff. Cast-Iron Pipe Co..	Special castings.....	134.00
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe.....	1,486.26
"	Buff. Cast-Iron Pipe Co..	Special castings.....	200.72
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe.....	546.23
"	Buff. Cast-Iron Pipe Co..	Special castings.....	201.65
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe.....	1,018.95
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe..	1,384.94

May 3.	Buff. Cast-Iron Pipe Co.	Cast-Iron pipe	\$2,855.12
"	Buff. Cast Iron Pipe Co	Special castings	258.88
"	G. C. Grimard, cash'r	Wages, laborers	1,150.52
"	Saml. Somerville & Son	Bay horse	225.00
"	W. C. McDonald.....	Removing surplus dirt	90.36
"	James Boland	Re-paving	419.20
May 10.	Buffalo Gas Light Co	Coke	18.00
"	Weed & Co .. .	Sundries	18.15
"	Buffalo Lubricat. Oil Co.	Oil.....	6.04
"	Haas & Klein.....	Stationery.. ..	343.00
"	G. C. Grimard, Cash'r	Wages, laborers	1,909.09
"	Lake Erie Boiler Works.	Sundries	5.00
"	Eddy Valve Co	Valves	617.25
"	Ulbrich & Kingsley	Tracing cloth	14.00
"	J. H. Ullenbruch & Co	Sundries	15.84
"	C. J. Hamilton	Sawing lumber, etc	15.11
"	Lesswing & Stines.. ..	New wagons, etc	523.00
"	C. W. Miller. ..	Coach hire.....	3.00
"	Eddy Valve Co.....	Valves.....	232.25
"	Eddy Valve Co .. .	Valves.....	949.75
"	Scatcherd & Son .. .	Lumber.	14.14
"	G. C. Grimard, Cash'r	Wages, laborers ..	1,309.56
May 17.	Holly Mfg. Co	On contract for new engine.	250.00
"	Everett & Post	Pig lead	3,154.80
"	Walbridge & Co	Sundries	16.39
May 24.	Everett & Post	Pig lead	1,583.04
"	H. H. Baker .. .	Sundries .. .	13.30
"	Eddy Valve Co..	Valves	622.50
"	Buff. Cast-Iron Pipe Co.	Pipe and castings	105.05
"	Buff. Cast-Iron Pipe Co.	Pipe and castings	10.22
"	Buff. Cast-Iron Pipe Co	Pipe and castings	304.97
"	Buff. Cast-Iron Pipe Co	Pipe and castings	170.01
"	G. B. Hayes	Pipe and castings	2,791.57
"	G. B. Hayes	Pipe and castings	1,859.55
"	Buff. Cast-Iron Pipe Co.	Pipe and castings	2,317.52

May 24.	Buff. Cast-Iron Pipe Co.	Pipe and castings	\$1,647.31
"	Buff. Cast-Iron Pipe Co.	Pipe and castings	1,935.54
"	G. C. Grimard, Cash'r.	Wages and laborers.....	1,755.27
"	G. C. Grimard, Cash'r.	Pay roll, May, 1886.....	1,984.46
May 31.	Jos. Bourgnon.....	Charcoal.....	3.00
"	Howard Iron Works	Repairs.....	19.00
"	Farrar & Trefts.....	Tool repairs.....	109.84
"	Farrar & Trefts.....	Engine repairs.....	4.40
"	Farrar & Trefts.....	Engine repairs.....	16.69
"	G. B. Hayes.....	Cast-iron pipe.....	1,909.90
"	James Boland.....	Re-paving.....	1,938.72
"	Fries & Co.....	Corporation cocks, etc..	319.07
"	Hardwicke & Ware.....	Vise	13.00
"	Eddy Valve Co.....	Valves.....	412.50
"	Eddy Valve Co.....	Valves.....	430.00
"	Smith & Becker, trustees.	Bone.....	10.00
"	Eddy Valve Co.....	Valves	277.75
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe.....	2,421.80
"	U. S. Electric Light & Power Co.....	1 Incandescent machine	2,500.00
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, etc.....	6,191 44
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, etc.....	132.85
"	Buff. Cast-Iron Pipe Co..	Cast iron pipe, etc... ..	316.78
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, etc... ..	4,635.88
"	G. B. Hayes.....	Cast-iron pipe.....	1,973.42
"	Eddy Valve Co.....	Valves	356.50
"	Eddy Valve Co.....	Valves	312.25
"	Charles J. Heinold.....	Sundries	103.38
"	J. H. Ruckle & Co.....	Sundries	232.40
"	Walbridge & Co.....	Sledges	10.65
"	A. W. Morgan.....	Valve boxes.....	648.34
"	Weed & Co	Sundries	31.18
"	Western Union Tel. Co.	Telegrams	8.99
"	G. C. Grimard, cash'r....	Wages, laborers.....	1,729.17
"	Alexander Francis.....	Moving boilers.....	150.00
"	P. Cunningham.....	Excavating.....	1,000.00

May 31.	P. Cunningham	Excavating	\$3,000.00
June 7.	G. C. Grimard, cash'r....	Wages, laborers..	1,694.10
June 14.	G. C. Grimard, cash'r	Wages, laborers	1,876.94
"	P. Cunningham . . .	Excavating	1,500.00
"	Eddy Valve Co . . .	Valves	366.25
"	Eddy Valve Co . . .	Valves	322.00
"	John Mumm... ..	Removing dirt . .	175.00
"	B. Cunningham	Blasting	45.50
"	J. W. Clark	Removing dirt.....	140.00
"	J. D. Warren	Stationery. . . .	111.00
"	Buffalo Lubricat. Oil Co.	Oil	56.69
"	Farrar & Trefts	Sundries	19.50
"	Buffalo Forge Co	Store-house tools.	1,451.90
"	R. G. Drullard	Carting	12.85
June 21.	James Boland	Re-paving	328.94
"	G. C. Grimard, cash'r	Wages, laborers	1,670.20
June 28.	James Boland	Re paving.	2,483.32
"	Sidney Shepard & Co .	Water buckets and dip- pers	3.65
"	F. Craiger.....	Team horses	350.00
"	G. C. Grimard, cash'r....	Wages laborers.	1,649.10
"	G. C. Grimard, cash'r....	Pay roll, June.	2,039.02
"	B. Cunningham.....	Excavating	4,500.00
"	Buff. Cast-Iron Pipe Co	Cast-iron pipe, castings	3,748.01
"	Buff. Cast-Iron Pipe Co	Cast-iron pipe, castings	144.76
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, castings	2,107.09
"	Buff. Cast-Iron Pipe Co	Cast-iron pipe, castings	1,120.24
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, castings .	413.55
"	G. B. Hayes.....	Cast-iron pipe, castings..	453.33
"	G. B. Hayes	Cast iron pipe, castings.	1,605.46
"	G. B. Hayes	Cast-iron pipe, castings.	1,601.47
"	Buffalo Carting Co	Carting	22.58
"	Daniel Lund....	Use of Shop and Tools.	5.00
July 2.	Irlbacker & Davis.....	Sundries	65.78
"	Buffalo Forge Co..	Hydrants	1,202.75
"	Williamsville Lime Co .	Cement.. . . .	7.8522

THE BUFFALO CITY WATER WORKS.

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July	2.	Bott & Hughes	Painting	\$ 44.93
"		S. Chamberlain.....	Wagon repairs.....	1.05
"		Irlbacker & Davis.....	Sundries	8.87
"		W. C. McDonald.....	Removing dirt.....	11.00
"		R. G. Drullard	Cartage.....	3.00
"		J. N. Matthews.....	Advertising	17.50
"		W. & L. E. Gurley.....	Sundries	319.00
"		C. J. Hamilton	Lumber	25.87
"		Walbridge & Co.....	Sledge.....	2.16
"		Charles Suor.....	Pine plugs.....	19.00
"		Hardwicke & Ware.....	One 3-inch Eddy valve.	9.00
"		S. D. Colie.....	Lumber	130.96
"		J. McCarthy.....	Tarred and manilla rope	339.80
"		John Lyth.....	Vit. pipe and elbows.....	90.00
"		Buffalo Forge Co.....	Hydrants	1,320.00
"		Weed & Co.....	Sundries.....	43.21
"		Buff. Gas Light Co	Labor and material.....	111.35
July	12.	G. C. Grimard, Cash'r..	Wages, laborers.....	1,842.43
"		G. C. Grimard, Cash'r..	Wages, laborers.....	1,494.48
"		Holly Mfg. Co	Final payment on con-	
			tract, Gaskill engine	150.00
"		Becker & Wickser.....	Harness, repairs, etc.....	69.15
"		Howard H. Baker.....	Sundries	24.00
"		J. H. Ruckle.....	Sundries	9.80
"		Fries & Co.....	Corporation cocks.....	297.30
"		Buffalo Forge Co.....	Hydrants.....	758.50
"		Scatcherd & Son.....	Lumber.....	3.80
"		John A. Love	One horse.....	200.00
"		N. Y. C. & H. R. R.....	Freight.....	2.71
"		N. Corwith & Co	Lead.....	4,796.97
"		B. Cunningham.....	Excavating	4,500.00
"		G. C. Grimard, Cash'r..	Wages, laborers.....	1,808.92
"		B. Cunningham.....	Excavating	2,400.00
July	19.	G. B. Hayes.....	Cast-iron pipe.....	65.88
"		G. B. Hayes.....	Cast-iron pipe.....	165.23
"		G. B. Hayes.....	Cast iron pipe.....	4.05

July 19.	G. B. Hayes	Cast-iron pipe	\$ 6.50
"	James Boland ...	Rep. boiler-house. .	238.70
"	James Boland .	Electric light foundation	145.50
"	James Boland	Building valve boxes	312.12
"	James Boland.....	Re-paving.	75.27
"	Buff. Cast-Iron Pipe Co.	Cast-iron pipe, etc... ..	633.15
"	Buff. Cast Iron Pipe Co	Cast-iron pipe, etc. ..	4,013.29
"	Buff. Cast-Iron Pipe Co	Cast-iron pipe, etc	3,974.94
"	Buff. Cast-Iron Pipe Co	Cast-iron pipe, etc	3,299.51
"	Buff. Cast-Iron Pipe Co	Cast-iron pipe, etc.	99.29
July 26.	Eddy Valve Co..	Valves. ..	350.00
"	Lesswing & Stines.	Wagon repairs .	61.19
"	Buffalo Forge Co.	Hydrants.	1,008.00
"	C. J. Heinold.....	Sundries	3.45
"	Bell Telephone Co.	Rent Telephone.....	60.00
"	Eddy Valve Co.	Valves.....	350.00
"	U. S. Electric Light and Power Co.....	Safety strips.....	8.06
"	U. S. Electric Light and Power Co.. .	Lamps, etc.	68.00
"	Becker & Wickser.....	Harness repairs. ...	81.85
"	Buffalo Lub. Oil Co	Oil	5.92
"	James Boland.	Foundations for No. 1 Worthington engine	1,036.43
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, etc. . .	3,148.59
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, etc.	91.18
"	Buff. Cast-Iron Pipe Co.	Cast-iron pipe, etc.....	116.64
"	Buff. Cast-Iron Pipe Co.	Cast-iron pipe, etc..	3,258.00
"	G. C. Grimard, cash'r ...	Wages, laborers during ad'g of Council	5,000.00
"	G. C. Grimard, Cash'r ..	Weekly roll.	1,429.71
"	G. C. Grimard, Cash'r	Pay roll, July.....	2,049.25
"	B. Cunningham.....	Excavat'g Herkimer st..	2,000.00
"	J. H. Ruckle & Co.	Steam-pipe contract	800.00
Aug. 30.	R. G. Drullard.	Cartage.	20.00
"	Jno. Wittman.....	Sharpening drills..	3.80

THE BUFFALO CITY WATER WORKS.

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Aug. 30.	L. & R. Powder Co.....	Explosives and fuses.....	\$ 15.26
"	Eddy Valve Co.....	Valves.....	38.50
"	P. G. Straub.....	Engine beds....	203.45
"	Buffalo Gas Light Co....	Coke.....	21.00
"	Goodyear Rubber Co....	Gaskets, etc.....	425.00
"	Eddy Valve Co.....	Valves.....	87.50
"	S. D. Colie.....	Lumber.....	71.61
"	Eddy Valve Co.....	Valves.....	87.50
"	Eddy Valve Co.....	Valves.....	73.25
"	Felthousen & Whittet....	Sheet lead.....	42.40
"	National Meter Co.....	Meter repairs....	70.70
"	S. D. Colie.....	Pine lumber.....	39.12
"	Scatcherd & Son.....	Oak lumber.....	20.92
"	International Ferry Co., Limited	Use of steamer Niagara.	75.00
"	Beals & Brown.....	Sundries.....	25.45
"	Williamsville Lime Co....	Cement.	36.30
"	J. H. Ruckle & Co.....	Sundries.....	35.65
"	Farrar & Trefts.....	Repairs coal hoist.....	88.73
"	A. W. Morgan.....	Sundries.....	847.55
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, etc.....	1,901.13
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, etc....	7.65
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, etc.....	1,988.11
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, etc.....	30.45
"	Buff. Cast Iron Pipe Co..	Cast-iron pipe, etc.....	2,075.30
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, etc.....	229.91
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, etc.....	1,587.27
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, etc.....	65.43
"	Beals & Brown.....	Sundries.....	81.63
"	Pratt & Co.....	Sundries.....	22.30
"	Pratt & Co.....	Sundries.....	25.88
"	Pratt & Co.....	Sundries.....	26.95
"	Buffalo Forge Co.....	Sundries.....	1,359.60
"	James Boland	Repairs, sewers, etc.....	336.12
"	W. C. McDonnell.....	Removing surplus earth.	410.50
"	G. C. Grimard, Cash'r..	Wages, laborers.....	752.36

Aug. 30.	G. C. Grimard, Cash'r	Pay roll, August	\$ 2,010.80
"	B. Cunningham	Excavating	3,000.00
Sept. 6	G. C. Grimard, Cash'r	Wages, laborers	958.20
Sept. 13.	G. C. Grimard, Cash'r	Wages, laborers	918.37
"	Fries & Co	Corporation cocks	548.90
"	Scatcherd & Son	Lumber	5.00
"	Buffalo Lubricat. Oil Co	Oils.	5.64
"	Walbridge & Co	Sundries	12.40
Sept. 20.	James Boland	Re-paving	332.48
"	A. W. Morgan	Valve boxes	441.08
"	Hand & Johnson	Tug service	50.00
"	M. E. Crow	Hay	125.56
"	James D. Warren	Stationery and adv	20.50
"	S. Somerville & Son	Veterinary services	42.00
"	G. C. Grimard, Cash'r	Weekly pay roll	741.60
"	J. H. Ruckle & Co	Steam pipe contract	200.00
Sept 27.	Eddy Valve Co	One 16-inch valve	78.25
"	Buffalo Forge Co	Fire hydrants, etc	1,897.55
"	John T. Rees, Reg	Weekly pay roll.	751.09
"	John T. Rees, Reg	Pay roll, Sept.	2,055.15
"	James Boland	Re-paving and repairs	368.84
Oct. 11.	Citizens' Gas Light Co	Coke	27.00
"	J. J. McWilliams	Coal	9.50
"	J. H. Ruckle & Co	Sundries	17.16
"	D. McNaughton	Sundries	31.95
"	G. C. Grimard, Cash'r	Wages laborers	818.27
"	P. G. Straub	Excavating rock, Jeffer- son street	450.00
"	G. C. Grimard, Cash'r	Wages, laborers.	793.24
"	Walbridge & Co	Sundries	4.20
"	Holly Mfg. Co	Engine repairs	2,228.00
"	James D. Warren	Advertising	7.00
"	The Times Co., limited	Advertising	3.50
"	J. N. Matthews	Advertising	4.50
"	Schlund & Doll	Desk	15.00
"	C. J. Heinold	Sundries	224.56

THE BUFFALO CITY WATER WORKS.

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Oct. 11.	S. D. Colie.....	Lumber.....	\$ 79.75
"	John Lyth.....	Vit. pipe, etc.....	65.01
"	A. W. Morgan.....	Valve boxes.....	202.75
"	Buffalo Lub. Oil Co.....	Oils.....	5.92
"	S. Chamberlain.....	Wagon repairs.....	2.76
"	Farrar & Trefts.....	Engine repairs.....	16.02
"	The Courier Co.....	Advertising.....	3.75
"	C. J. Hamilton.....	Lumber.....	39.47
"	P. G. Straub.....	Excavating rock, etc., Jefferson street.....	500.00
"	James Boland.....	Apply on contract for roof to new boiler- house.....	1,642.00
"	G. C. Grimard, Cash'r..	Wages, laborers.....	797.26
Oct. 25.	Taylor & Crate.....	Lumber.....	26.07
"	Bingham & Taylor..	Valve boxes.....	58.31
"	Goodyear Rubber Co....	Rubber packing, etc....	35.03
"	Ulbrich & Kingsley.....	Stationery.....	3.30
"	G. F. Vogt.....	Oats.....	70.83
"	Buff. Mutual Gas Light Co.....	Removing and replacing pipe on Shumway st..	3.78
"	B. Cunningham.....	Blasting rock, etc., Scaj. Creek, at Jefferson st.	485.00
"	B. Cunningham.....	Labor and materials, Scaj. Creek, at Jefferson st.	88.02
"	Buff. Street R. R. Co....	Street rails.....	24.75
"	Farrar & Trafts.....	Putting on iron roof at boiler-house, lower en- gine-house.....	1,016.00
"	James Franklin.....	Tallow.....	14.00
"	J. H. Ruckle.....	Sundries.....	9.10
"	W. C. McDonald.....	Removing surplus dirt, etc.....	105.25
"	Weed & Co.....	Sundries.....	13.09
"	G. C. Grimard, Cash'r..	Wages, laborers.....	1,087.32

Oct.	25.	G. C. Grimard, Cash'r.	Pay roll, October.	..	..\$	2,058.03
"	"	G. C. Grimard, Cash'r	Wages, laborers.	.		843.41
Nov.	8.	G. C. Grimard, Cash'r	Wages, laborers.			540.73
"	"	Buff. Cast-Iron Pipe Co	Pipe and castings			204.27
"	"	Buff. Cast-Iron Pipe Co	Pipe and castings			199.45
"	"	Buff. Cast-Iron Pipe Co	Pipe and castings			58.60
"	"	Buff. Cast Iron Pipe Co	Pipe and castings			219.79
"	"	Buff. Cast Iron Pipe Co	Pipe and castings			912.41
"	"	Buff. Cast Iron Pipe Co.	Pipe and castings.			94.78
"	"	Buff. Cast Iron Pipe Co	Pipe and castings.			1,083.97
"	"	Buff. Cast-Iron Pipe Co.	Pipe and castings			1,671.53
"	"	Buff. Cast-Iron Pipe Co.	Pipe and castings.			153.91
Nov.	15.	P. Hickler.	Placing river buoy.	..		60.00
"	"	S. D. Colie	Lumber.			14.85
"	"	H. Burge.....	Saw-dust			21.00
"	"	Fries & Co	Sundries			370.58
"	"	Farrar & Trefts.	Engine and boiler rep...			507.37
"	"	J Churchyard.	Lumber...	..		369.84
"	"	Farrar & Trefts.	Removing boiler, etc....			540.84
"	"	Farrar & Trefts.	Repairs, old boilers,			
			lower engine-house ...			391 34
"	"	Jos. Churchyard.	Labor, S. coal-shed for			
			tunnel			300.49
"	"	Jos. Churchyard	Roof, new boiler-shed...			159.19
"	"	G. C. Grimard, Cash'r.	Wages, laborers...	..		553.08
"	"	Farrar & Trefts..	Rep. boilers, contract.			1,695.57
"	"	Farrar & Trefts	Rep. engine, No. 1 con-			
			tract			2,428.50
"	"	G. C Grimard, Cash'r	Wages, laborers...	..		254.80
Nov	29.	C. J. Heinold.	Supplies...	..		47.22
"	"	Buffalo Forge Co	Sundries			57.30
"	"	E. H. Butler ...	Advertising..			6.50
"	"	Sheeler & Sons.	Wire strainers.	..		4.50
"	"	Scatcherd & Son.....	Lumber			2.07
"	"	W. C. McDonald.	Removing surplus earth.			100.00
"	"	John Lyth	Vit. pipe, etc.....			50.85

THE BUFFALO CITY WATER WORKS.

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Nov. 29.	A. W. Morgan.....	Valve boxes.....	\$ 21.24
"	Beals & Brown.....	Sundries.....	84.67
"	Adams & White.....	Stationery.....	19.00
"	G. C. Grimard, Cash'r..	Wages, laborers.....	128.63
"	G. C. Grimard, Cash'r..	Pay roll, November.....	1,971.48
"	A. Francis	Moving engine and boil- ers.....	105.00
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, etc.....	181.27
"	Buff. Cast-Iron Pipe Co..	Cast iron pipe, etc... ..	119.95
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, etc.....	2,315.01
"	Buff. Cast-Iron Pipe Co.	Cast-iron pipe, etc	129.66
"	Buff. Cast Iron Pipe Co..	Cast-iron pipe, etc.....	1,748.71
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, etc... ..	293.14
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, etc.... ..	745.21
"	Buff. Cast-Iron Pipe Co..	Cast-Iron pipe, etc.....	166.40
"	Buff. Cast-Iron Pipe Co..	Cast-Iron pipe, etc.....	471.03
"	Buff. Cast-Iron Pipe Co..	Cast-Iron pipe, etc.....	40.39
Dec. 20.	James Boland	Re-paving, etc.	832.78
"	Irlbacker & Davis.....	Sundries... ..	63.25
"	Hugh McDonald.....	Horseshoeing	4.00
"	Hand & Johnson....	Taking up buoy.....	80.00
"	Goodyear Rubber Co....	Packing hose, etc.	31.00
"	Fries & Co.....	Corporation cocks, etc... ..	169.00
"	Cornell Lead Co.....	Lead pipe and solder....	23.85
"	Fox & Holloway	Sand	35.00
"	Henry Diehl.....	Rent vacant lot.....	100.00
"	Buff. Cast-Iron Pipe Co..	Cast-iron pipe, etc.	13.57
"	Walbridge & Co.....	Sundries and supplies ..	1.63
"	Hardwicke & Ware.....	Brass valve and fitting same	4.37
"	C. J. Hamilton & Co....	Lumber, etc.....	.75
"	Jacob Ginther.....	Stable grating	144.66
"	James Elliott & Son.....	Oil cloth horse covers..	7.00
"	Brush Bros.	Brick	18.00
"	W. H. H. Newman & Co.	Galvanized iron	1.98

Dec. 20.	S. D. Colie.	Lumber	\$ 20.22
"	R. H. Thayer & Co....	Hydrant boxes	721.05
"	James Boland	Valve repairs	110.60
"	W. C. McDonald	Sand, gravel and use of wagon	18.50
"	D. McNaughton.	Lug bands, etc.	36.50
"	Goodyear Rubber Co . . .	Sundries	4.00
"	J. H. Ruckel...	Material and labor, con- necting boilers at low- er engine-house con- tract, balance account	286.34
"	Buff. Cast-Iron Pipe Co.	Pipe and specials	97.48
"	James Boland	Paving, etc.	71.75
"	Bott & Hughes	Painting	37.00
"	A. Francis.	Raising smoke-stack lower engine-house. . .	83.00
"	Buffalo Forge Co.....	Leather valves.	19.80
"	Machwirth Bros... . . .	New roof south boiler- house, lower engine- house	702.70
"	Buff. Cast-Iron Pipe Co.	Cast-iron pipe, etc.....	8,879.50
"	G. C. Grimard, Cash'r..	Wages, week ending Dec. 4th, laborers.....	245.25
"	G. C. Grimard, Cash'r..	Wages, week ending Dec. 11th, laborers . . .	321.00
"	Buff. Cast-Iron Pipe Co..	Pipe and castings... . . .	81.74
"	P. Flannigan...	Damages to horse.. . . .	69.50
"	John Carigan....	Damages to horse and wagon	130.00
"	F. Winter.	Damages on account of sewer.	1,200.00
"	David Shay.....	Damages.....	200.00
"	G. C. Grimard, Cash'r..	Wages, laborers.. . . .	1,774.90
"	G. C. Grimard, Cash'r	Wages, laborers.. . . .	353.25
"	J. W. Hill.....	Testing new engine.. . .	496.75
Dec. 27.	G. C. Grimard, Cash'r..	Weekly pay roll.....	361.33

THE BUFFALO CITY WATER WORKS.

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Dec. 27.	G. C. Grimard, Cash'r..	Pay roll, December.....	\$ 1,921.86
Dec. 31.	Jos. E. Barnard.....	Taxes for 1886.....	71.47
"	G. C. Grimard, Cash'r..	Wages, laborers.....	349.37

MAINTENANCE AND REPAIRS.

Jan. 11.	G. C. Grimard, Cash'r..	Wages, laborers	\$ 221.58
Jan. 18.	G. C. Grimard, Cash'r..	Wages, laborers	270.35
Jan. 25.	G. C. Grimard, Cash'r..	Wages, laborers	264.27
"	G. C. Grimard	Cash'r..Pay roll, Jan.....	3,361.32
Feb. 1.	G. C. Grimard, Cash'r..	Wages, laborers.	268.49
Feb. 8.	G. C. Grimard, Cash'r..	Wages, laborers	258.04
"	G. C. Grimard, Cash'r..	Postage stamps	25.00
Feb. 15.	Lee, Holland & Co.....	Matching lumber.....	1.43
"	A. Rumsey & Co.....	One side sole leather....	6.09
"	C. E. Brinkworth.....	Repairing 2 dies.....	.50
"	Star Oil Co.....	Oil.....	21.60
"	Haas & Klein.....	Common Council blanks	3.00
"	Hardwicke & Ware.....	No. 3 wheel cutter.....	2.50
"	Weed & Co.....	Sundries	22.67
"	Hoddick & Co.....	Three frames	5.00
"	H. H. Baker & Co	One 12-foot oar	1.08
"	Powell & Plimpton... ..	Sundries	3.20
"	J. C. Post.....	Paint.....	.75
"	James D. Warren.....	Printing	11.50
"	D. J. Stickney.....	Coal.....	13.70
"	Walbridge & Co.....	Sundries.....	4.83
"	Buffalo Lubricating Oil		
	Co., limited.....	Oil	47.75
"	W. G. Dixon	Boiler compound.....	10.00
"	Lee, Smith & Moore.....	One ton coal	4.00
"	Wm. C. McDonald.....	Sand	29.25
"	Lee, Smith & Moore.....	One ton coal	4.00
"	Banner Milling Co.....	Feed	8.40
"	J. J. McWilliams, Ag't..	Coal	17.80

Feb.	15.	Eddy Valve Co.	Valves	\$ 42.00
"		Wheeler & Davis	½-inch chain.	2.75
"		Joseph Bourgnon . . .	Charcoal	1.50
"		Howard Iron Works . .	Hydrants.	228.00
"		Lake Erie Boiler Works	Boiler repairs	80.84
"		Haas & Klein	Sundries	105.50
"		Pratt & Co.	Sundries	63.63
"		Becker & Wickser	Harness repairs	25.90
"		S. Chamberlain	Wagon and sleigh rep.	35.86
"		G. C. Grimard, Cash'r	Weekly roll, laborers.	258.79
Feb.	22.	Ulbrich & Kingsley	Stationery	2.25
"		Banner Milling Co.	Feed	8.40
"		Jacob Amesbury	Gumming and filing saws	1.25
"		Becker & Wickser. . . .	Sundries	55.80
"		Sidney Shepard & Co	Sundries	29.27
"		J. H. Ruckle & Co	Sundries	51.86
"		G. C. Grimard, Cash'r	Pay roll, February . .	3,230.64
Mar.	1.	G. C. Grimard, Cash'r	Weekly pay roll	294.12
Mar.	8.	G. C. Grimard, Cash'r	Weekly pay roll	264.66
"		G. C. Grimard, Cash'r	Postage stamps. . . .	25.00
"		Weed & Co	Sundries	14.86
"		Barnes, Hengerer & Co.	Remnant carpeting . .	6.00
"		Hammond & Guild	One clock.	1.00
"		H. H. Baker & Co.	Sundries	2.57
"		Thos. Conboy	Hay and oats.	192.57
"		C. W. Holloway. . . .	Sand	11.25
"		C. W. Holloway..	Sand.	5.63
"		Bingham & Taylor	Hub wheels	3.10
"		E. G. Felthousen	Rep. gauge, etc. . . .	10.75
"		C. J. Heinold	Merchandise.	17.76
"		Becker & Wickser.	Stable supplies..	6.02
"		Lee, Smith & Moore.	Coal	4.00
"		Ulbrich & Kingsley . .	Merchandise.	2.25
"		Brady & Maltby	Labor	2.40
"		J. C. Post..	Sundries.	3.20

THE BUFFALO CITY WATER WORKS.

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Mar. 8.	Lake Erie Boiler Works..	Repairing boiler.....	\$ 4.55
"	H. H. Baker & Co.....	Manilla rope, etc.....	.42
"	Jabesh Harris.....	Soft soap.....	10.00
"	Lesswing & Stines.....	Material	11.50
"	H. McDonald.....	Horseshoeing	6.40
Mar. 15.	G. B. Hayes....	Cast iron pipe.....	259.66
"	J. J. McWilliams	Coal	13.80
"	W. G. Dixon.....	100 lbs. boiler compound	10.00
"	J. H. Ruckle.....	Sundries	9.30
"	Goodyear Rubber Co....	Gaskets, etc.....	7.62
Mar. 22.	Volker & Felthousen		
	Mfg. Co.....	Duplex pump, etc.....	175.00
"	Buffalo <i>Democrat</i>	Advertising	10.50
"	Haas & Klein.....	Printing.....	168.15
"	Tift Furniture Co....	Four chairs.....	6.00
"	Adams & White.....	Stationery, etc.....	72.17
"	Walbridge & Co.....	Sundries	6.80
"	G. C. Grimard, Cash'r..	Weekly wages, laborers.	264.27
Mar. 29.	National Meter Co....	Spindles for meter.....	1.50
"	Powell & Plimpton.....	Sundries.....	.70
"	G. C. Grimard, Cash'r..	Wages, laborers.....	127.90
"	G. C. Grimard, Cash'r..	Pay roll, March.....	3,862.66
"	Lehigh Valley Coal Co..	To apply on coal con- tract.....	857.81
April 5.	James Boland.....	Repairing sewer.....	7.95
"	John C. Post	Paint.....	2.35
"	National Meter Co.....	Spindles.....	1.50
"	S. A. Huson....	Clock repairs.....	4.10
"	Buff. Lubricat. Oil Co....	Oil.....	79.03
"	G. C. Grimard, Cash'r..	Wages, laborers.....	214.24
April 15.	G. C. Grimard, Cash'r..	Postage stamps.....	50.00
"	G. C. Grimard, Cash'r..	Wages, laborers... ..	153.88
April 19.	The Courier Lith. Co....	Stationery.....	15.60
"	G. B. Hayes.	Feed	50.72
"	Goodyear Rubber Co....	Sundries	6.00
"	C. W. Halloway.....	Sand	15.00

April 19.	J. J. McWilliams ..	Coal.	\$ 8.80
"	Weed & Co.	Sundries ..	2.25
"	National Meter Co	Meter counters	6.75
"	Haas & Klein	Stationery.	23.50
"	G. F. Vogt	Hay	17.49
"	A. H. Brown	Corporation cocks.	35.48
"	S. Chamberlain..	Wagon repairs.	6.33
"	Buffalo Lubricating Oil Co., limited.	Oil	133.75
April 26.	The Courier Co .	Stationery..	8.00
"	Ulbrich & Kingsley	Stationery	22.95
"	G. C. Grimard, Cash'r.	Wages, month of April.	3,541.10
"	G. C. Grimard, Cash'r.	Postage stamps .	25.00
May 3.	G. F. Vogt	Hay.	14.70
"	J. H. Ruckle & Co.	Sundries.	74.08
"	National Meter Co.	Sundries.	2.50
"	Bell Telephone Co	Messages	9.00
May 10.	Weed & Co..	Sundries.	5.26
"	S. Chamberlain..	Wagon repairs..	10.40
"	Buff. Lubricat. Oil Co	Oil	107.30
"	Lake Erie Boiler Works.	Sundries.	11.00
"	Banner Milling Co..	Feed	8.40
"	Hugh McDonald	Horseshoeing..	8.80
"	Adams & White.	Stationery.	29.33
"	G. C. Grimard, Cash'r	Postage stamps...	50.00
May 17.	John Slotzer	Saw-dust. .	18.00
May 24.	C. J. Drescher.	Paper boxes...	1.00
"	F. C. Schottin. .	.. Binding	32.50
"	Becker & Wickser	Harness repairs, etc.	24.85
"	A. H. Brown	Sundries...	51.29
"	G. C. Grimard, Cash'r	Pay roll, May, 1886.	3,968.92
May 31.	W. H. H. Newman.	Solder	7.50
"	Farrar & Trefts.	Engine repairs. . .	88.24
"	Farrar & Trefts.	Engine repairs..	24.94
"	Farrar & Trefts. . .	Engine repairs. . .	112.45
"	James D. Warren....	Stationery	69.50

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May	31.	Goodyear Rubber Co.....	Pure packing.....	\$ 32.81
"		D. J. Stickney.....	Coal.....	4.00
"		Buffalo Gas Light Co....	Coke.....	9.00
"		James Coyle.....	Wheelbarrows.....	21.00
"		John C. Post.....	Lamp-black.....	.90
"		C. J. Hamilton... ..	Lumber.....	50.00
"		Lake Erie Boiler Works..	Repairing boiler ..	3.50
"		Howard Iron Works	Rep. elevator register...	5.55
"		Volker & Felthousen		
		Mfg. Co.....	Repairing feed pumps....	103.21
June	7.	G. C. Grimard, Cash'r..	Postage stamps.....	50.00
"		H. H. Baker & Co.....	Sundries.....	18.23
"		Haas & Klein.....	Stationery.....	39.00
"		Buff. Lubricat. Oil Co....	Oil.....	84.10
"		Farrar & Trefts	Sundries.....	54.13
June	21.	James Boland.....	Re-paving	328.94
"		G. C. Grimard, Cash'r..	Pay roll, June.....	4,078.05
"		H. H. Wolfe.....	Feed.....	36.80
July	2.	S. Chamberlain.....	Wagon repairs.....	16.99
"		Irlbacker & Davis	Sundries.....	3.55
"		James D. Warren....	Stationery.....	23.00
"		John C. Post.....	Ven. red and putty.....	1.45
"		Buffalo Gas Light Co....	Coke.....	24.00
July	19.	Lehigh Valley Coal Co..	On coal contract.....	13,000.00
"		J. H. Ruckle & Co.....	Sundries.....	60.46
"		Hugh McDonald.....	Horseshoeing.....	9.20
"		Adams & White.....	Stationery.....	27.66
"		Gates & Jetter.....	Repairing files.....	13.89
"		The Times Co	Two copies <i>Daily Times</i> .	2.50
"		Virgiel Ayers.....	Whitewashing, etc.....	8.25
"		James Boland.....	Re-paving.....	75.27
July	26.	Ulbrich & Kingsley.....	Stationery.....	5.73
"		J. Harris.....	Soft soap.....	10.00
"		D. J. Stickney.....	Coal.....	4.00
"		Urban & Co.....	Feed	4.50
"		C. J. Heinold.....	Sundries.....	10.25

July 26.	Bell Telephone Co..	Rent of phone.	\$ 60.00
"	C. J. Heinold.....	Feed	101.10
"	Star Oil Co.....	Oil	71.22
"	Goodyear Rubber Co..	Gaskets...	2.62
"	Buff. Lubricat. Oil Co	Oil.	90.80
"	Star Oil Co	Oil.	18.73
"	G. C. Grimard, Cash'r.	Pay roll, July	4,098.52
July 30.	D. W. Hodge.	Roofing.. . . .	18.70
"	J. C. Post.....	Sundries	7.60
"	Star Oil Co	Oil	75.08
"	Buff. Lubricat. Oil Co.	Oil.	13.77
"	Henry Borge	Sawdust...	19.87
"	Eddy Valve Co... . . .	Valves	116.75
"	Haas & Klein.	Stationery and printing	9.00
"	Haas & Klein	Stationery and printing..	105.00
"	National Meter Co.	Meter repairs.	9.00
"	Goodyear Rubber Co..	Gaskets, etc	19.51
"	Union Water Meter Co.	Meter repairs.	19.50
"	E. G. Marvin.	Oil.....	32.40
"	Weed & Co.	Sundries.	8.05
Aug. 30.	Pratt & Co	Sundries..... . . .	18.11
"	The Courier Co	Two city directories.....	8.00
"	Farrar & Trefts.....	Sundry repairs..... . .	88.76
"	G. C. Grimard, Cash'r.	Pay roll, August.....	4,121.60
Sept. 6.	J. H. Horton, Ag't... .	Partial payment on coal contract...	6,000.00
"	S. Chamberlain.....	Repairing wagons.....	38.47
"	Becker & Wickser . . .	Harness repairs, etc.. .	29.80
"	Haas & Klein	Printing	6 00
Sept. 13.	D. J. Stickney	Coal	4.00
"	Holly Mfg. Co.....	Butts and nuts.....	3.00
"	Walbridge & Co	Sundries	6 87
"	Buff. Lubricat. Oil Co..	Oils.....	75.28
"	James Boland.. . . .	Re-paving, etc.....	345.20
"	Powell & Plimpton . .	Sundries	8.25
"	Adams & White.....	Stationery..... . . .	15.55

THE BUFFALO CITY WATER WORKS.

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Sept. 13.	S. Somerville & Son.....	Veterinary services....	\$ 50.00
"	J. T. Rees, Reg.....	Postage stamps.....	25.00
Sept. 27.	H. G. Trout.....	Repairs.....	5.00
"	J. T. Rees, Reg.....	Pay roll, September.....	4,110.32
"	James Boland.....	Re-paving and repairs....	27.96
Oct. 11.	Goodyear Rubber Co	Sundries.....	99.15
"	M. E. Crow.....	Hay	11.83
"	Courier Lith. Co.....	Printing.....	15.60
"	J. J. McWilliams.....	Coal	2.25
"	Jabesh Harris... ..	Soft soap.....	10.00
"	J. H. Ruckle & Co....	Sundries.....	69.66
"	D. McNaughton ...	Sundries.....	2.00
"	J. H. Horton, Agent....	Coal contract.....	7,000.00
"	O. W. Clark & Son.....	Grass seed, etc....	12.95
"	H. Borge.	Sawdust	3.00
"	Walbridge & Co.....	Sundries.....	8.14
"	H. D. Taylor.....	Axle washers.....	2.80
"	Urban & Co	Oats	2 70
"	John C. Post.....	Paints.....	1.60
"	James D. Warren.....	Printing	35.00
"	Urban & Co.....	Feed	8.34
"	National Meter Co.....	Meter repairs.....	2.75
"	Buff. Lubricat. Oil Co...	Oils.....	22.95
"	S. Chamberlain.....	Wagon repairs.....	16.63
"	Farrar & Trefts.....	Engine repairs.....	185.97
"	Farrar & Trefts.....	Engine repairs.....	65.25
"	J. F. Schoellkopf Sons...	Bark	1.50
"	Becker & Wickser	Harness repairs.....	89.35
Oct. 18.	G. C. Grimard, Cash'r..	Postage stamps.....	50.00
Oct. 25.	G. F. Vogt.....	Hay	17.35
"	Felthousen & Russell....	Sundries ...	8.20
"	Star Oil Co.....	Oil	94.34
"	Goodyear Rubber Co...	Rubber packing, etc.....	6.00
"	Ulbrich & Kingsley.....	Stationery	28.80
"	Ulbrich & Kingsley.....	Stationery.....	3.50
"	D. J. Stickney	Coal.....	8.00

Oct. 25.	James Franklin	Tallow	\$ 36 50
"	J. H. Ruckle & Co	Sundries	90.86
"	Felthousen & Whittet	Rep. machinery, lower engine house	65.19
"	G. C. Grimard, Cash'r.	Pay roll, October.....	4,116.08
Nov 15	Urban & Co	Feed	4.05
"	Felthousen & Russell	Engine repairs	90.92
"	Holly Mfg. Co	Rep. feed pumps	10.45
"	Buffalo Gas Light Co.	Coke	12.00
"	John C Post	Paints	2.25
"	French & Kirkholder	Baskets.. . . .	2.00
"	U. S. Electric Light Co.	Sundries	6.00
"	Weed & Co.	Sundries	1.18
"	S. Chamberlain . . .	Wagon repairs	54.96
"	G. C. Grimard, Cash'r	Postage stamps	50.00
Nov. 29.	C. J. Heinold.	Supplies	5.53
"	B. Hammersmith . .	Supplies	11.43
"	H. H. Baker	Supplies . . . . .	.37
"	Haas & Klein	Coin wrappers.	6.00
"	Brady & Maltby.....	Cutting and fitting gate	10.00
"	Buff. Lubricat. Oil Co.	Oil.....	43.25
"	Western Union Tel. Co.	Special message, service and telephones..	1.35
"	National Meter Co. . .	Counter-shafts	6.00
"	Jos. Rehm	Washing towels.....	10.00
"	Star Oil Co.....	Oil...	122.46
"	J. J. McWilliams... ..	Coal.	5.00
"	Adams & White	Stationery	19.75
"	J. H. Horton, Agt . . .	Coal contract.....	5,000.00
"	G. C. Grimard, Cash'r.	Pay roll, November.....	3,942.98
Dec. 20	James Boland	Re-paving, etc.	574.46
"	Irlbacker & Davis . . .	Sundries	46.02
"	J. H. Ruckle	Sundries	59.52
"	Valentine Young & Son	Brooms	11.00
"	Goodyear Rubber Co . .	Packing, hose, etc . . .	5.20
"	Sidney Shepard & Co.	Supplies, etc.....	3.20

THE BUFFALO CITY WATER WORKS.

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Dec. 20.	J. J. McWilliams & Co...	Coal	\$ 10.00
"	S. Chamberlain....	Repairs to wagons.....	14.03
"	Urban & Co.....	Feed, etc.....	3.90
"	Ludlow Valve Mfg. Co..	Rubber rings for 4-inch gate	6.00
"	D. J. Stickney.....	Coal	4.00
"	Walbridge & Co	Sundries	8.20
"	Hardwicke & Ware.....	Brass valves and fitting..	52.64
"	Hall & Sons.....	Fire brick, clay, etc....	53.00
"	Ludlow Valve Mfg. Co..	Supplies, store-house....	9.90
"	H. G. White.....	Lettering cash boxes....	2.25
"	C. J. Hamilton.....	Lumber, etc.....	4.50
"	Buffalo Gas Light Co....	Coke.....	3.00
"	Valentine & Son	Locks and repairs	2.60
"	Powell & Plimpton.....	Sundries	4.69
"	D. McNaughton.....	Lug bands, etc.....	6.00
"	Hawley Klein.....	Block	2.00
"	Goodyear Rubber Co. ..	Sundries	19.27
"	Haas & Klein.....	Printing, etc.....	49.00
"	Becker & Wickser.....	Sundries	54.25
"	Bott & Hughes.....	Painting, etc.....	20.37
"	S. A. Huson.....	Clock repairs.....	3.00
"	J. H. Horton, Agt.....	Coal, bal. on contract....	4,189.05
"	G. C. Grimard, Cash'r..	Postage stamps... ..	50.00
Dec. 27.	G. C. Grimard, Cash'r...	Pay roll, December.....	3,843.74
"	J. E. Barnard.....	Gas bills, 1886.....	1,162.35

SERVICES.

There were inserted three thousand seven hundred and three new taps during the year.

The total number of services in the city, January 1, 1887, is twenty-six thousand four hundred and thirty-eight.

Respectfully submitted,

JOHN T. REES,

Registrar.

DISTRIBUTION

OF THE

WATER DEPARTMENT

FOR THE

YEAR 1886.

DISTRIBUTION

OF THE

WATER DEPARTMENT

FOR THE

YEAR 1886.

DULL

RESERVOIR		VALVES								Remarks.
Inch.	16	6	8	10	16	20	24	36	Total.	
Feet.	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch		
2									2	
1									1	
1									1	
2		1	1						4	Crossings.

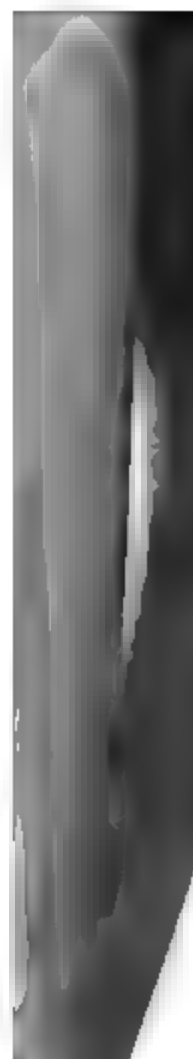
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ASTEN, LENOX AND
TILDEN FOUNDATIONS.

VALVES.

[illegible]

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ATKINS



COST PER FOOT.								Remarks.
Bid Yards, Cv2	6 inch.	10 inch.	12 inch.	16 inch.	20 inch.	24 inch.	36 inch.	
	\$.97		\$2.01					
	.91	\$1.68	1.99	\$2.34				
41	.89	2.23		2.56	\$3.38		\$9.40	
5	.87	1.70						
7	.87							
7	.75		2.05					
4	.93	2.00		2.19				
7	1.22			2.60	4.89			
6					6.19	\$11.36		Excavation done by con.
	\$.90	\$2.00	\$2.04	\$2.46	\$4.33	\$11.36	\$9.40	
	.89	1.52	2.11	2.53		5.59	13.77	
	\$.01	\$.48			\$4.33	\$5.77		
			\$.07	\$.07			\$4.37	

THE
PUEL
ASTOR, L
TILDEN FOUR

FIRE HYDRANTS.

The number of Fire Hydrants placed during the year on new line of mains was one hundred and eighty, of which one hundred and twenty-six was on the reservoir supply, and fifty-four on the high service supply, making the total number in the city, December 31, 1886, one thousand nine hundred and sixty three. Following schedule gives location of hydrants set during 1886 :

Location.	System. Sewered.	
Adams street, northwest corner of Eagle.....	R.	S.
Austin street, southwest corner of East.....	"	"
Austin street, center of block between East and Thompson	"	"
Austin street, southeast corner of Thompson..	"	"
Austin street, southeast corner of Gorton	"	"
Austin street, southwest corner of Tonawanda	"	"
Anderson place, southwest corner of Elmwood ave....	H.	"
Alabama street, at the Erie Railroad.	R.	
Arkansas street, southwest corner of Hibbard.....	H.	
Arkansas street, southwest corner of Barton... ..	"	
Alabama street, southeast corner of Scott..	R.	
Bouck avenue, northwest corner of Herkimer....	H.	
Bouck avenue, southwest corner of Main	"	
Bouck avenue, center of block between Main and Michigan.....	"	
Bouck avenue, northwest corner of DeWitt... ..	"	"
Bouck avenue, center of block between DeWitt and Herkimer	"	"
Bouck avenue, southwest corner of Chapin place.....	"	
Bouck avenue, southwest corner of Elmwood avenue....	"	
Bouck avenue, northwest corner of Emily.....	"	
Bouck avenue, southwest corner of Baynes.....	"	
Bouck avenue, southeast corner of Bidwell place.....	"	
Bouck avenue, northeast corner of Chapin place ...	"	
Bouck avenue, center of block between Elmwood and Delaware avenues ...	"	

Location.	System.	Sewered.
Bristol street, southwest corner of Montgomery	R.	
Bristol street, southwest corner of Raze	"	
Breckenridge street, southwest corner of Herkimer....	H.	S.
Broadway, northwest corner of Beck	R.	
Broadway, northwest corner of Bowen	"	
Broadway, northwest corner of Sweet	"	
Broadway, northwest corner of Rother	"	
Broadway, northwest corner of Schwarback ..	"	
Broadway, northwest corner of Goodyear....	"	
Broadway, northwest corner of Little....	"	
Broadway, northwest corner of Husback.	"	
Broadway, northwest corner of Shepard	"	
Broadway, northwest corner of Gatchell	"	
Brayton street, center of block between Massachusetts and Rhode Island	H.	
Coit street, west side, 277 feet north of Lovejoy . . .	R.	"
Coit street, west side, 280 feet south of Broadway... .	"	"
Chester street, center of block between Ferry and Rail- road	H.	"
Chester street, southwest corner Railroad.	"	"
Chester street, center of block between Railroad and Puffer	"	"
Chester street, southwest corner of Barr	"	"
Chester street, southwest corner of Ferry	"	"
Clinton avenue, northeast corner of Niagara	R.	"
Congress street, southwest corner of Clinton avenue . .	H.	
Carroll street, northwest corner of Hydraulic	R.	
Carroll street, northwest corner of Griffin	"	
Carroll street, north side, 400 feet east of Griffin.....	"	
California street, southwest corner of Hibbard....	H.	"
California street, southwest corner of Barton	"	"
California street, southwest corner of Herkimer..	"	
Clark street, center of block between Lovejoy and Peckham.	R.	
Clark street, center of block between Peckham and Curtis	"	

Location.	System.	Sewered.
Clark street, southwest corner of Peckham.....	R.	
Church street, northeast corner of Jackson.....	"	
DeWitt street, southeast corner of Bradley	"	S.
Detroit street, west side, 320 feet north of William	"	"
Detroit street, west side, 317 feet south of Peckham.....	"	"
Detroit street, west side, center of block between Peckham and Lovejoy.....	"	"
Dearborn street, southwest corner of Austin.....	"	"
Dearborn street, northwest corner of Parish.	"	"
Dearborn street, center of block between Parish and Amherst	"	"
Dearborn street, center of block between Amherst and Hamilton	"	"
Dearborn street, southwest corner of Hamilton.....	"	"
Dearborn street, center of block between Hamilton and Austin	"	"
Dearborn street, center of block between Austin and Farmer	"	"
Dearborn street, southwest corner of Hertel avenue.....	"	"
Elm street, southwest corner of Clinton.....	"	"
Elm street, center of block between Broadway and Sycamore	"	
Elm street, northwest corner of Sycamore.....	"	
Elm street, center of block between Sycamore and Genesee	"	
Elm street, southwest corner of Genesee.....	"	
Eagle street, northwest corner of Union.....	"	
Eagle street, center of block between Michigan and Union	"	
Euclid place, northwest corner Abbott road.....	"	
Euclid place, northwest corner of Prenatt.....	"	
Emily street, southwest corner of Clinton	"	
Eaton street, south side, 475 feet east of Masten.....	H.	
Eaton street, south side, 475 feet west of Jefferson.....	"	
Fulton street, south side, 50 feet east of Erie R. R.....	R.	

Location.	System.	Sewered.
Fulton street, south side, in front of No. 607	R.	
Fulton street, south side, in front of No. 645	"	
Fillmore avenue, west side, between Peckham and Lovejoy	"	
Fillmore avenue, southwest corner of Lovejoy	"	
Fillmore avenue, west side, 300 feet north of Broadway	"	
Fillmore avenue, west side, 400 feet south of Broadway	"	
Farmer street, southwest corner of Gorton	"	S.
Farmer street, southwest corner of Tonawanda.	"	"
Fitzgerald street, northwest corner of Sandusky	"	
Gorton street, center of block between Amherst and Hamilton.	"	
Gorton street, west side, between Hamilton and Austin	"	
Gorton street, west side, between Austin and Farmer	"	
Gorton street, southwest corner of Hertel avenue.	"	
Genesee street, northeast corner of Niagara square.	"	
Grant street, northeast corner of Arkansas	H.	
Glenwood avenue, southeast corner of Verplanck...	"	
Herman street, center of block between North and Best.	"	"
Hoyt street, southwest corner of Clinton avenue.	"	"
Hamilton street, northwest corner of Gorton	R.	"
Hertel avenue, northwest corner of East.	"	"
Herkimer street, northwest corner of Auburn.	H.	"
Herkimer street, southwest corner of Helen	"	"
Indiana street, southeast corner of Mary.	R.	
Johnson street, center of block between North and Best.	H.	"
Jersey street, northwest corner of Plymouth avenue.	"	"
Jersey street, southwest corner of Front avenue.	R.	"
Jefferson street, southwest corner of Florida	H.	
Jefferson street, west side, 337 ft. south of main	"	
Jefferson street, southwest corner of Delavan avenue.	"	"
Jefferson street, west side, 300 ft. north of Delavan ave.	"	
Jerry street, northeast corner of Raze	R.	
Kentucky street, northwest corner of St. Clair.	"	
Lewis street, center of block between Clinton and Norton	"	

Location.	System.	Sewered.
Lovejoy street, southwest corner of Gibson.....	R.	
Lovejoy street, southwest corner of Lombard.....	"	
Lovejoy street, southwest corner of Clark.....	"	
Lord street, southwest corner of North Division	"	S.
Ludington street, northwest corner of Garfield.....	"	
Ludington street, northwest corner of Scheller.....	"	
Ludington street, northwest corner of Goethe.....	"	
Ludington street, northwest corner of Gould	"	
Ludington street, northwest corner of Benzinger.....	"	
Ludington street, northwest corner of Davy.....	"	
Maurice street, center of block between Elk and Perry.	"	
Maurice street, southwest corner of Perry....	"	
Maurice street, center of block between Seneca and Perry.....	"	
Michigan street, southwest corner of Delavan avenue....	H.	
Michigan street, northwest corner of Bouck avenue	"	
Masten street, southwest corner of Barr.....	"	
Meyers street, southwest corner of Best.....	"	
Mechanic street, southeast corner of Stevens.....	R.	
Mechanic street, south side, at canal.....	"	
Norton street, south side, between Lewis and Babcock..	"	
North Division street, southwest corner of Bond.....	"	
Northampton street, center of block between Michigan and Masten.....	H.	"
North street, southwest corner of Rose..	"	
Oneida street, southeast corner of Montgomery	"	"
Oneida street, southeast corner of Raze	R.	"
Orlando street, southwest corner of Seneca	"	
Orlando street, center of block between Seneca and Perry	"	
Ohio street, northeast corner of street....	"	
Peabody street, west side, 300 feet south of Seneca.	"	
Peabody street, west side, 600 feet south of Seneca.....	"	
Peabody street, southwest corner of Perry.....	"	
Peabody street, center of block between Perry and Elk	"	

Location.	System.	Sewered.
Plymouth avenue, center of block between Hampshire and Massachusetts	H.	
Pennsylvania street, south side, opposite Fourteenth.	"	S.
Porter street, center of block between Van Rensselaer and Hydraulic.	R.	
Raze street, northwest corner of James	"	"
Reed street, west side, 400 feet south of James	"	"
Reed street, west side, 450 feet north of Sycamore	"	"
Shumway street, center of block between Peckham and Lovejoy	"	"
Shumway street, southwest corner of Lovejoy	"	"
Shumway street, center of block between Lovejoy and Broadway	"	"
Sherman street, center of block between North and Best	H.	
Smith street, southwest corner of Bristol.	R.	
Scott street, southwest corner of Mississippi	"	
Scott street, southwest corner of Clark and Skinner Canal.	"	
Southampton street, southwest corner of Jefferson.	H.	S.
Southampton street, south side, 500 feet west of Jefferson	"	"
Southampton street, south side, 507 feet east of Masten	"	"
Sweeney street, southwest corner of Best.	"	
Sycamore street, northwest corner of Reed.	R.	
Sycamore street, northwest corner of Guilford.	"	
Townsend street, northwest corner of William.	"	"
Townsend street, west side, in front of No. 70.	"	
Townsend street, west side, in front of No. 34.	"	
Townsend street, southwest corner of Lovejoy.	"	
Troupe street, center of block between Seneca and Wescott	"	
Troupe street, southwest corner Westcott.	"	
Thomas street, center of block between Howard and William	"	
Thompson street, center of block between Amherst and Hamilton.	"	"

THE BUFFALO CITY WATER WORKS.

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Location.	System.	Sewered.
Thompson street, center of block between Austin and Farmer	R.	"
Thompson street, center of block between Hamilton and Austin	"	"
Tennessee street, west side, near Erie R. R	"	
Utica street, southwest corner of Hauf.....	H.	
Walter street, southeast corner of Seneca.....	R.	
Walter street, west side, 300 feet south of Seneca.....	"	
Walter street, west side, 250 feet north of Perry	"	
R. Reservoir supply..	126	
H. High service.....	54	
	—	180
Hydrants set in previous years.....		1,783
Total hydrants in city December 31, 1886.....		1,963

FIRE RESERVOIRS.

Location.	Number.
Main street, in front of Spaulding's Exchange.....	1
Main street, in front of Lafayette Park.....	1
Main street, in front of churches.....	1
Main street, corner of Exchange.....	1
Main street, corner of Seneca.....	1
Main street, corner of Swan.....	1
Main street, corner of North Division.....	1
Main street, corner of Eagle.....	1
Main street, corner of Genesee.	1
Seneca street, corner of Chicago.....	1
Goodell street, corner of Washington.....	1
Niagara square, junction of Genesee and Court.....	1
Niagara street, corner of Mohawk.....	1
Eagle street, corner of Genesee	1
Broadway, in front of Arsenal.....	1
Clinton street, corner of Union.....	1
Total.....	16

DRINKING FOUNTAINS.

Location	Number
Delaware avenue, corner of Court .	1
Main street, corner of Seneca	1
Main street, corner of Erie	1
Main street, opposite Court ...	1
Main street, corner of Huron	1
Michigan street, corner of Seneca . .	1
Michigan street, corner of Broadway	1
Michigan street, corner of Genesee.	1
Washington Market.	1
Total	9

HORSE FOUNTAINS.

Location	Number
Broadway, in front of Arsenal.	1
Elk street, between East and West Market	1
Elk street, front of Atlas Refining Company	1
Elk street, corner of Hamburg	1
Erie street, between Seneca and Terrace	1
Forest avenue, opposite No. 54	1
Genesee street, between Lower and Upper Terrace..	1
Genesee street, corner of Ellicott	1
High street, corner of Genesee	1
Main street, corner of Ferry.	1
Main street, corner of Steele.	1
Maryland street, corner of Fifth	1
Niagara street, between Eagle and Franklin . . .	1
Niagara street, corner of Prospect avenue.. . . .	1
Niagara street, corner of Clinton avenue... . .	1
Niagara street, corner of Amherst (old style)... . .	1
Niagara street, corner of Austin (old style).	1
Niagara street, corner of Hertel avenue	1

THE BUFFALO CITY WATER WORKS.

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Swan street, at junction with Seneca.....	I
West avenue, between York and Porter avenue.....	I
York street, corner of Thirteenth.....	I
	—
Total	21

FREE HYDRANTS.

Location	Number.
Chicago street, northwest corner of Mackinaw.....	I
Chicago street, southeast corner of Elk.....	I
Chicago street, southeast corner of Fulton	I
Elk street, northeast corner of Columbia.....	I
Elk street, southeast corner of Moore.....	I
Elk street, southeast corner of Hamburg....	I
Exchange street, north side, between Jefferson and Hamburg....	I
Exchange street, northwest corner of Heacock	I
Fifth street, northwest corner of Georgia	I
Fourth street, northeast corner of Carolina.....	I
Louisiana street, east side, between Ohio and South.....	I
Louisiana street, northeast corner of Sandusky	I
Mackinaw street, southeast corner of Tennessee.....	I
Mackinaw street, southwest corner of Vandalia.....	I
Perry street, southwest corner of Illinois.....	I
Perry street, southeast corner of Hamburg	I
Perry street, southwest corner of Hayward.....	I
	—
Total.....	17

PUMPING
DEPARTMENT,
1886.

PUMPING DEPARTMENT.

PUMPING ENGINES, AND THEIR CAPACITY PER 24 HOURS.

I. Lower House.

Engine No. 1, Worthington	10,000,000 gallons.
“ “ 2, “	15,000,000 “
“ “ 3, “	15,000,000 “
“ “ 4, Gaskill	15,000,000 “

II. Upper House (Distributing).

Engine No. 2, Holly	6,000,000 gallons.
“ “ 1, “ Reserve.....	3,000,000 “
Water pumped, 1886.....	12,169,882,676 “
“ “ 1885	10,441,393,340 “
<hr/>	
Increase, 1886	1,728,489,336 gallons.

DAILY SUPPLY.

The average daily supply for the year 1886 was thirty-three million three hundred and forty-two thousand one hundred and forty four gallons, an increase of four million seven hundred and thirty five thousand five hundred and eighty-seven gallons over the previous year. On the following days the greatest and least amounts were pumped :

GREATEST AMOUNTS PUMPED.

Thursday, February 4, 1886 .	.....	...	50,062,888 gallons.
Friday, February 5, 1886 .	....	.....	50,347,076 "
Thursday, December 30, 1886.	..	.....	49,607,100 "

LEAST AMOUNTS PUMPED.

Sunday, April 25, 1886 .			24,927,400 gallons.
Sunday, May 16, 1886	...	...	22,325,200 "
Sunday, October 3, 1886	.	.....	24,920,220 "

DUTY OF ENGINES.

LOW SERVICE.			HIGH SERVICE.	
WORTHINGTON.		GASKILL.	WORTHINGTON.	GASKILL.
No. 2.	No. 3.	No. 1.	No. 3.	No. 1.
49,738,374	40,097,622	. . . . .	. . . . .	97,773,228
43,297,128	44,894,808	. . . . .	. . . . .	98,556,796
46,370,268	43,285,788	. . . . .	. . . . .	97,233,343
47,142,732	42,649,194	. . . . .	54,350,016	96,192,280
46,774,795	. . . . .	66,586,884	55,068,350	* *
45,720,058	51,376,147	69,057,097	52,255,526	. . . . .
40,438,040	47,136,751	. . . . .	. . . . .	. . . . .
40,333,860	48,242,460	. . . . .	. . . . .	. . . . .
47,496,960	50,980,070	. . . . .	. . . . .	. . . . .
45,002,412	50,213,218	. . . . .	. . . . .	. . . . .
44,791,202	40,111,680	. . . . .	. . . . .	. . . . .
41,616,139	42,575,383
.
45,643,497	46,414,829	67,821,991	53,891,297
46,717,242	47,422,514	55,238,928

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